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# *Cooperative* **FROZEN FOOD** *Locker Associations*

BY L. B. MANN  
and PAUL C. WILKINS

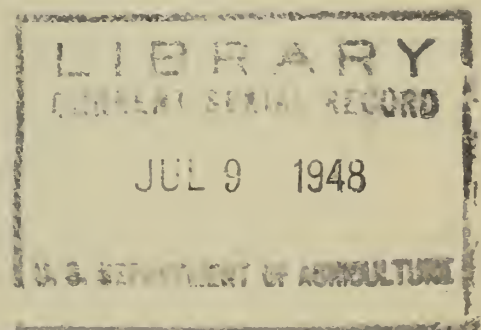


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## SUMMARY

Locker plants represent one of the fastest growing branches of the food industry. On July 1, 1947, there were over 9,500 plants in operation. Approximately 10 percent or about 900 of these plants are cooperatively owned. About a third of the cooperative plants now operating have been established since 1944. Nearly two-thirds of the co-op plants built since 1941 have been independent associations not affiliated with another cooperative, and nearly one-half of all cooperative plants reporting on July 1, 1947, were independently operated.

Sixty-three percent of all cooperative plants were located in the North Central States; 13 percent in the South Central; 13 percent in the Atlantic Coast States; and 11 percent in the Western States. Cooperative plants, compared with the average shown for all plants in 1946, averaged smaller in size, had a higher farm patronage, were located in smaller towns but processed a greater volume per locker and performed a wider variety of services. Rental and processing rates charged by cooperative plants were lower than the average shown for all plants.

Investment costs of cooperative plants have risen sharply since the War. The cost of plants built prior to 1941 averaged from \$34 to \$45 per locker compared with \$70 to \$76 from 1945 to 1947.

Receipts<sup>1</sup> per locker averaged \$26.70; expenses \$23.55; and net savings \$3.15. Locker rentals represented 43 percent of receipts, processing accounted for 47 percent, and other services 10 percent.

Expenses averaged 88 percent of receipts. Labor accounted for 49 percent of all expenses; fixed charges, 18 percent; utilities, 10 percent; supplies, travel, and miscellaneous expenses, 19 percent; and interest and income taxes, 4 percent.

Net savings averaged \$3.15 per locker rented. This represented 12 percent of receipts or a 7.5 percent return on investment.

Both size of plant and variety of services appeared to have a fairly definite bearing upon savings made. Plants up to 500 lockers averaged substantially lower savings than plants of more than 500 lockers. Likewise plants offering limited processing services were, on the average, unable to achieve the level of savings of the more complete service plants. Those renting lockers only, averaged \$2.50 per locker; those performing cutting, wrapping, and freezing, \$2.93; those which added curing, \$3.94; and those with complete service, including slaughtering, averaged \$4.18 per locker. In general, there appears to be a level of locker plant size and services below which it is difficult to realize adequate savings.

The number of full-time employees needed to operate cooperative plants ranged from one for plants up to 200 lockers to five for plants of 1,000

<sup>1</sup>In most instances the term receipts refers not only to cash transactions but also to accruals of receipts.

lockers. The number varied according to services rendered, being higher for plants giving complete service and lower for plants with only limited service.

In evaluating the future of cooperative frozen-food locker plants in the processing, storing, and marketing of food, there are a number of problems to be solved as well as possibilities for improving and expanding services.

While processing of meat and poultry for home freezer units is not as yet an important source of income to many plants, there are indications that it will materially expand. In the future it is conceivable that processing may become more important than locker rental storage. In the case of many plants today, processing is not a profitable operation. Efforts should be directed toward improving efficiency of operations in this department. Locker plants should benefit from the increased use of home units provided they render satisfactory processing service to home-unit owners.

During and since the War, locker plants have been operating under extremely favorable conditions. Because of active demand, high consumer incomes, shortages of meat, rationing, and the influence of a new and superior method of preserving and storing food, locker plants have enjoyed a "sellers' market." As a result locker-plant operators have not had to do a real selling job, have not been faced with keen competition, and have not been forced to operate efficiently in order to make a successful showing.

The time is fast approaching, if not already here, when locker plants faced with increased operating costs, keener competition from packers, retail stores, other locker plants, and home units will find it more difficult to make satisfactory savings.

The possibilities for future expansion in the marketing, processing, storing, and merchandising of both locally produced food as well as the distribution of commercially frozen food, produced outside the area, appear promising.

While the locker-plant business is one of relatively narrow operating margins, it offers an excellent means of improving quality production, upgrading diets, expanding market outlets for locally produced food products, and in narrowing the spread between producer and consumer.

The study indicates a wide variation in receipts, expense, and net savings between cooperative locker plants, and emphasizes the need on the part of most plants for improved utilization of labor and equipment, more efficient processing, greater return from byproducts, addition of more services, increased volume of products processed, reduced costs, and a more effective job of merchandising their goods and services. If cooperative locker plants will direct their efforts toward improving their operations along these lines, they can become an important factor in benefiting both producers and consumers.

In some localities the locker plant may point the way toward larger commercial processing and freezing operations by farmers.



# COOPERATIVE FROZEN FOOD LOCKER ASSOCIATIONS

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The growth of frozen food locker plants represents one of the most rapidly expanding phases of the frozen food industry in the United States. About 9,500 plants were in operation on July 1, 1947. These plants had an estimated investment of \$225 million and annual gross receipts of about \$115 million. The 9,500 plants had capacity for 4,700,000 lockers capable of processing and storing about 1,600 million pounds of food. They serve nearly four million families, three-fourths of which are farmers.

While the largest proportion of these locker plants are owned and operated by private individuals, partnerships, and corporations, farmers operate cooperatively approximately 900 plants, about 10 percent of the total. Investment in cooperative locker plants is estimated at \$22 million, and gross receipts at \$10 million.

The Pacific Northwest led in the early development of cooperative plants. The first cooperative to provide freezing and storing services was the Whatcom County Dairymen's Association of Bellingham, Wash. It started in 1923, to freeze meat, for patrons, in boxes on the floor of the sharp freeze room. In 1925, to save floor space, wall shelves were built. Two years later, in 1927, doors were put on the wall shelves. About 1930, 1,250 regular lockers were installed and lockers added since then bring the present total to 1,327. Another cooperative, the Walla Walla Dairymen's Association, Walla Walla, Wash., initiated locker service in 1927.

It was not until the middle 1930's that cooperative plants were organized in the Middle West. The first cooperative locker plant in this section was established in 1934 by the Farmers Cooperative Creamery of Pelican Rapids, Minn. Other plants were installed in the next few years by the Land O'Lakes Creamery at Litchfield, Minn., several cooperative cheese plants in Brown County, Wis., and the Lee County Farm Bureau at Amboy, Ill. Expansion in the South and East did not begin until about 1941, with maximum growth since 1943.

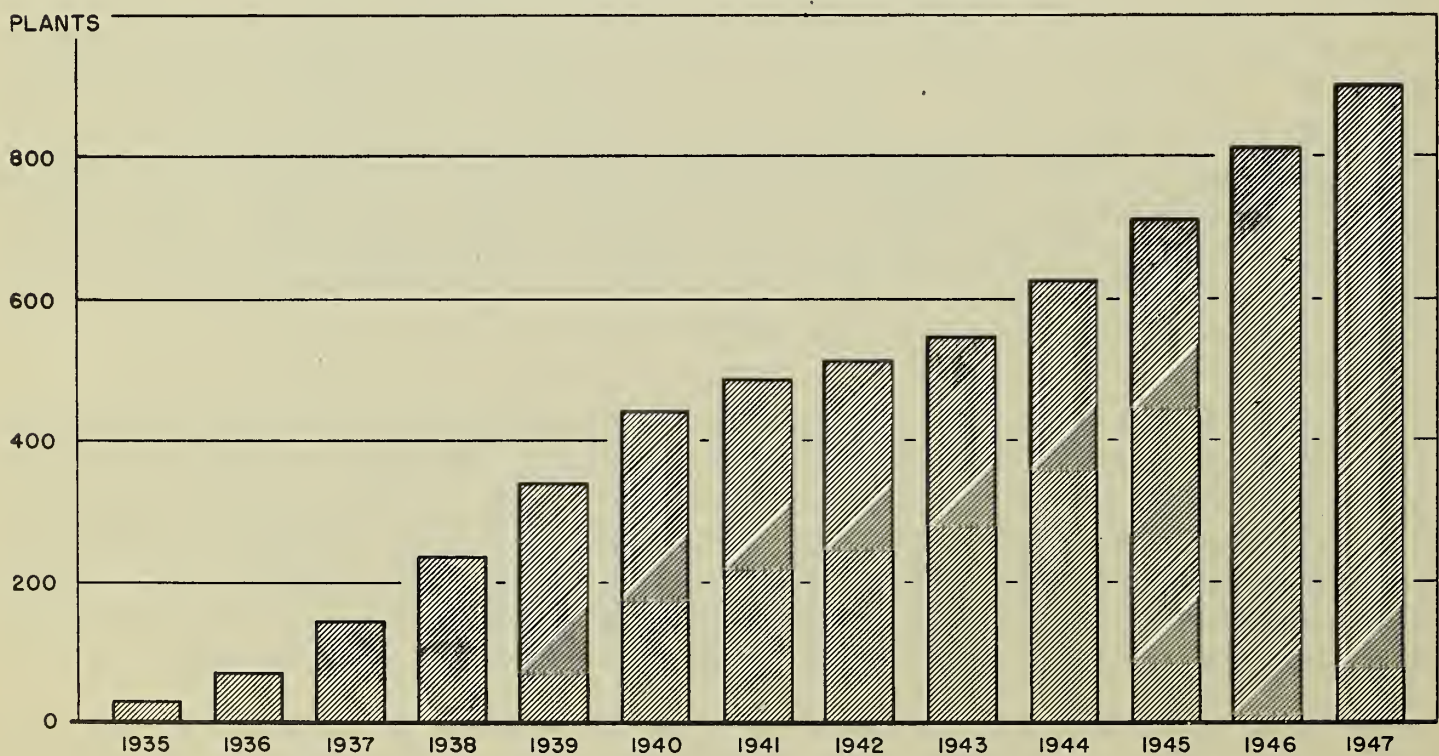
It was not until 1937 that cooperative locker plants were established in any large numbers. The years from 1937 to 1941 saw a rapid growth. While the construction of new plants was sharply curtailed during the war period, 1941-45, new cooperative plants expanded rapidly as soon as controls were lifted. This expansion extended throughout the Middle West and Pacific Coast States and into the eastern and southern States, bringing the total to 900 plants in 1947. (See table 1, fig. 1.)

Table 1. - Estimated number of cooperative frozen food locker plants in operation on Dec. 31, 1947, in the United States, by year of opening, 1935-1947

YEAR OPENED	PLANTS	TOTAL PLANTS
1935 and prior.....	30	30
1936.....	40	70
1937.....	75	145
1938.....	90	235
1939.....	105	340
1940.....	100	440
1941.....	45	485
1942.....	25	510
1943.....	35	545
1944.....	80	625
1945.....	85	710
1946.....	100	810
1947.....	90	900

FIGURE 1

GROWTH OF COOPERATIVE FROZEN-FOOD LOCKER  
PLANTS IN THE UNITED STATES





Because this new and rapidly expanding industry has grown like Topsy, there are few guideposts or standards to follow. While considerable information has been published by State colleges and others on construction, plant layouts, and techniques of processing and freezing, little reliable information is available on operations.

The purpose of this study was to ascertain the number, location, organizational set-up, patronage, services rendered, capacity, rates and charges, volume processed, investment in facilities, number of employees, and receipts, expense, and savings made by cooperative locker plants in the United States. It was felt that an analysis of this information should furnish cooperatives as well as others with useful material regarding locker plant operations, and might serve as a basis for more detailed studies of those plants which appear to be most successful.

In making this study, schedules were mailed to 840 cooperative plants in July 1947. Of this total, 392 schedules were returned; with 341 or 40 percent providing sufficient information to be used in this analysis. Approximately 150,000 lockers were represented in the study.

### WHERE AND WHEN PLANTS OPENED

The greatest concentration of cooperative locker plants is in the mid-western States of Minnesota, Illinois, Iowa, and Wisconsin; Pacific Coast States of Washington and Oregon; Texas in the Southwest; Vermont in the North Atlantic; and Virginia in the South Atlantic States. (See table 2, fig. 2.)

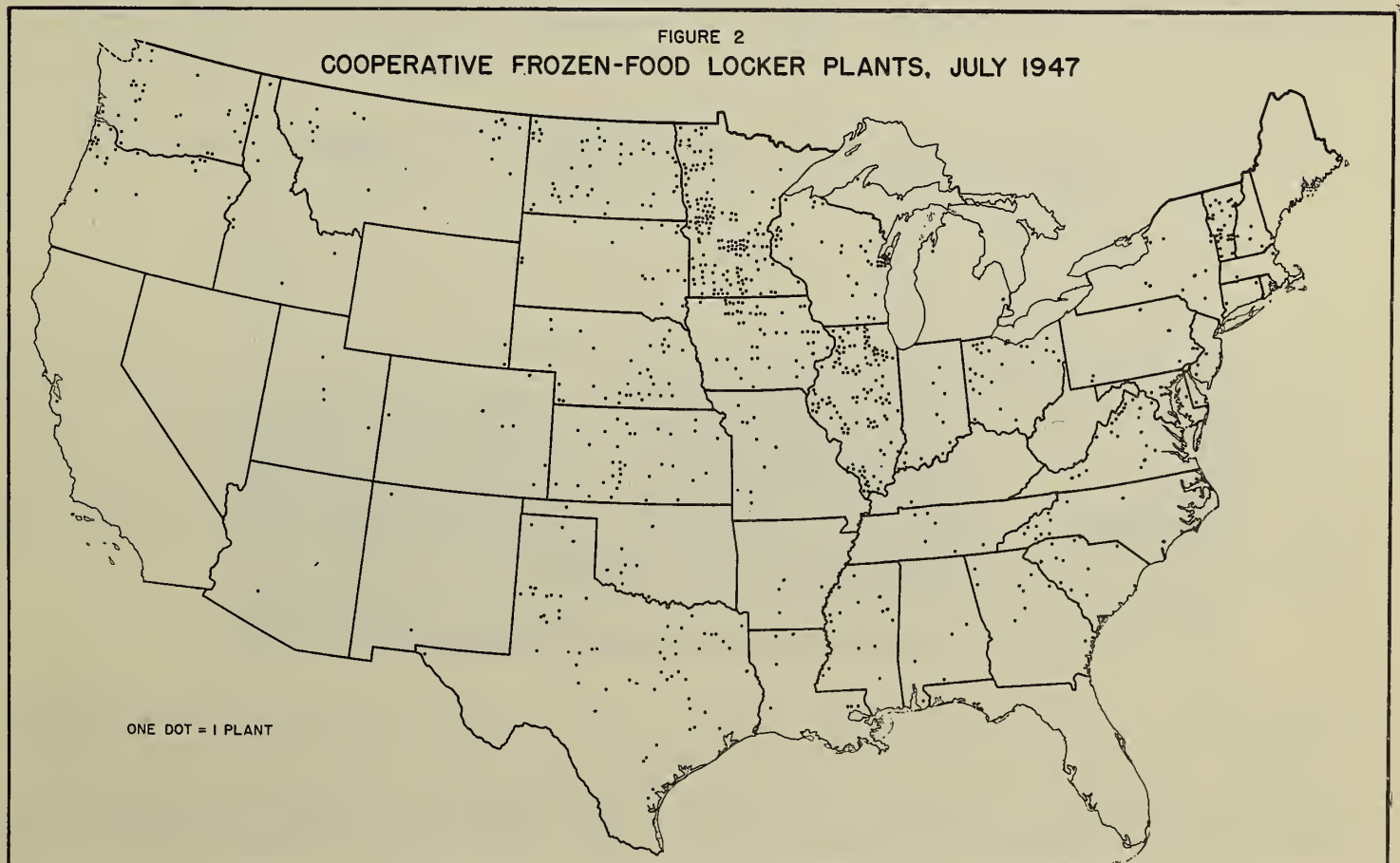


Table 2. - Cooperative frozen food locker plants in the United States, July 1, 1947

STATE AND REGION	NUMBER OF PLANTS	STATE AND REGION	NUMBER OF PLANTS
Illinois.....	116	Alabama.....	5
Indiana.....	10	Arkansas.....	4
Iowa.....	47	Kentucky.....	1
Kansas.....	33	Louisiana.....	7
Michigan.....	5	Mississippi.....	16
Minnesota.....	149	Oklahoma.....	9
Missouri.....	10	Tennessee.....	6
Nebraska.....	32	Texas.....	61
North Dakota.....	45	South Central.....	109
Ohio.....	24	Connecticut.....	2
South Dakota.....	16	Massachusetts.....	2
Wisconsin.....	41	New Hampshire.....	4
North Central.....	528	New Jersey.....	3
Arizona.....	1	New York.....	9
California.....	1	Pennsylvania.....	7
Colorado.....	7	Vermont.....	26
Idaho.....	8	North Atlantic.....	53
Montana.....	19	Delaware.....	2
New Mexico.....	2	Georgia.....	9
Oregon.....	20	Maryland.....	5
Utah.....	4	North Carolina.....	11
Washington.....	28	South Carolina.....	10
Wyoming.....	2	Virginia.....	21
Western.....	92	South Atlantic.....	58
		UNITED STATES.....	840

Prior to 1936, seventy percent of all cooperative plants were located in the Western States. From 1935 to 1943, 70 to over 90 percent of all plants opened were in the North Central States; while from 1944 to 1946, the South Central and Atlantic Coast areas accounted for 37 to 50 percent of the new plants. In 1946 and 1947, the North Central States again showed the greatest growth, with 73 and 78 percent of the new plants.

#### HOW ORGANIZED AND FINANCED

Cooperative locker plants have been organized and financed in a number of ways. Most of the early plants were set up as departments of cooperative creameries, cheese factories, milk plants, elevators, and farm supply associations. In some States local farm organization groups were



responsible for organizing and establishing locker plants.

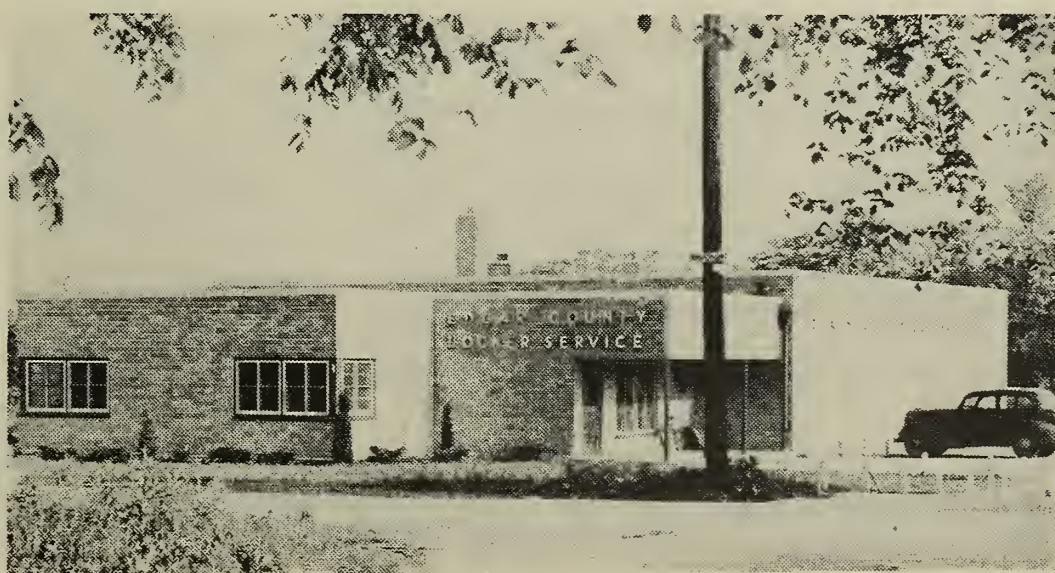
One of the most interesting developments has taken place in Illinois where 43 county farm bureaus organized and financed approximately 120 locker plants, most of which are operated as independent units. Thirty-nine of these county associations are federated into a State-wide organization, known as the Illinois Cooperative Locker Service, an affiliate of the Illinois Agricultural Association--the State farm bureau organization.

The Illinois Cooperative Locker Service employs a general manager and furnishes a number of services to local groups:

1. An engineering service to assist in the planning and construction of new plants as well as providing a "trouble shooting" service for all plants.
2. A procurement and purchasing service for equipment and locker plant supplies.
3. A uniform accounting and auditing service through the auditing department of the Illinois Agricultural Association.

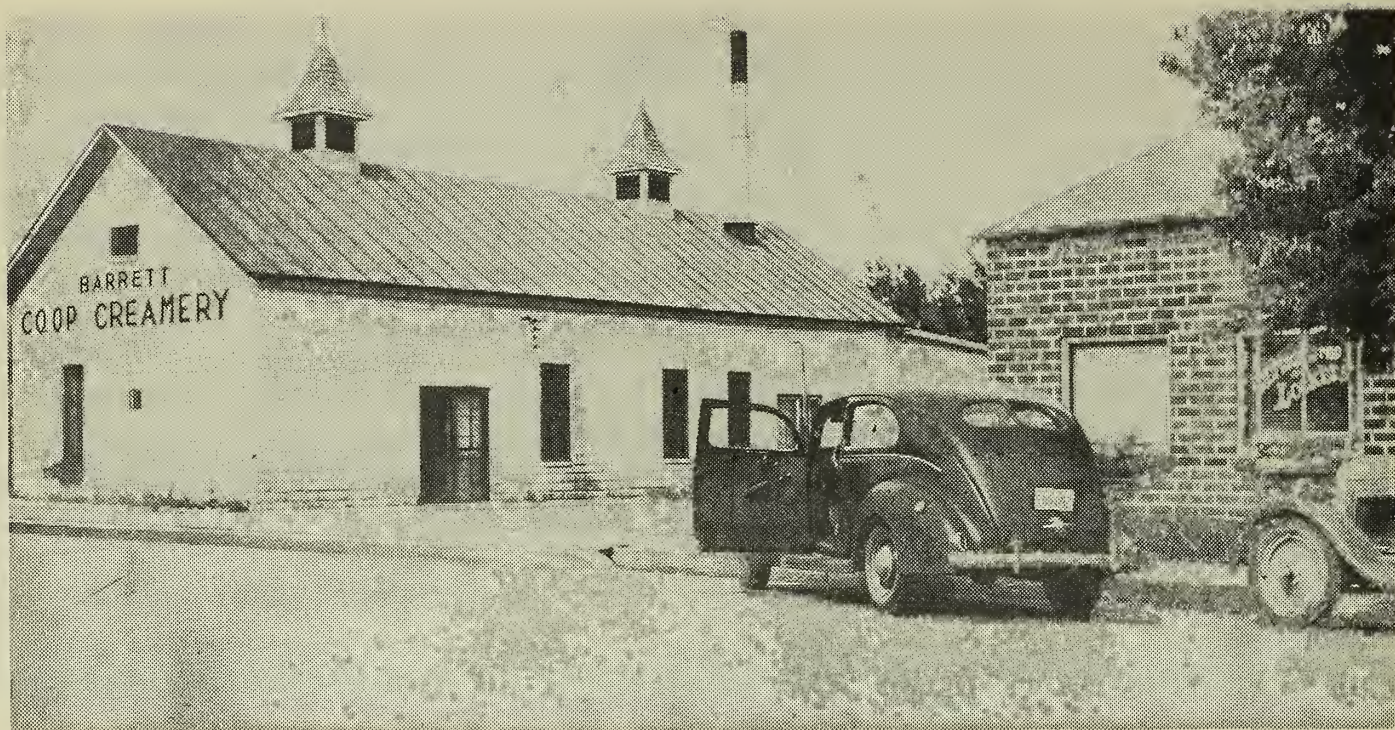
The State association also assists local groups in legal and legislative matters and carries on educational and organizational work.

Through the efforts of the State association, comparative analyses of operating costs of the associations and of individual plants have been conducted for several years by the Cooperative Research and Service Division and the St. Louis Bank for Cooperatives of the Farm Credit Administration. These studies have given directors and managers an opportunity to compare operating efficiency and to make needed changes. The published results are available to other cooperatives as well as to private plants.



*Modern locker plant, Paris, Ill., one of the 39 county units affiliated with the Illinois Cooperative Locker Service.*





*Typical small locker plant operated in conjunction with Cooperative Creamery, Barrett, Minn.*

Local creameries affiliated with Land O'Lakes Creameries, Inc., have organized and financed approximately 70 locker plants in Minnesota, Wisconsin, and the Dakotas. These plants were set up largely as departments of local cooperatives.

In Virginia, Maryland, and Delaware, Southern States Cooperative, Inc. a large regional farm supply cooperative, organized, financed, and constructed nine local locker plants which are operated as independent cooperative enterprises. The overhead organization provides engineering service, uniform accounting and auditing service; purchases supplies; and employs a general manager to supervise operations.

The Farmers Federation Cooperative, Asheville, N. C., organized, financed, and operates seven local locker plants. It provides engineering, accounting, auditing, and supply and equipment purchasing services, and employs a general manager to supervise operations. Most of these plants are housed in buildings with local farm supply stores, but operate largely as separate cooperative enterprises.

Forty-two locker plants located in a dozen States, largely throughout the South, have been organized, financed, and constructed by local REA cooperatives. Considerable assistance has been rendered these local groups by the Rural Electrification Administration in organization, engineering, accounting, and operating procedures.

In New York State the Cooperative Grange League Federation Exchange, Inc. financed, constructed, and operates a model pilot locker plant in Ithaca known as "Mother Zero." This plant, besides furnishing local locker service, is used as a research laboratory on frozen foods



in cooperation with Cornell University. The GLF organization through its local units also operates several other plants and is carrying on research in the construction and use of home-freezing cabinets in conjunction with locker plants.

In a number of other States plants have been established by local groups affiliated with the Farmers Union, Grange, Farm Bureau, and Equity organizations, and by local cooperatives.

The most common way of financing cooperative locker plants is through the sale of stock, 45 percent of the plants reporting this method; while 39 percent used funds from the parent organizations. Sale of certificates and membership fees were used by 10 percent. (See table 3.) The use of prepaid locker rentals as a means of financing construction was another method reported by a small number of cooperatives.

Nonaffiliated associations used the stock method of financing to the largest extent; while associations affiliated with milk plants, elevators, and farm supply associations relied principally upon funds supplied by parent organizations.

Fifty-five percent of the associations supplemented their financing through the use of borrowed funds--plants not affiliated with other cooperatives using this method to the greatest extent. Associations affiliated with grain elevators reported no borrowed funds.

Table 3. - Number of associations reporting method of original financing and percentage using various methods, by affiliation

AFFILIATION	ASSOCIATIONS REPORTING	METHOD OF ORIGINAL FINANCING				
		SALE OF STOCK	SALE OF CERTIFI- CATES	RESERVE OF PARENT ASSOCIATION	MEMBERSHIP FEES	OTHER
	<i>Number</i>	<i>Percent</i>				
Not affiliated.....	77	84	2	-	9	5
Milk plants.....	72	17	6	70	1	6
Farm supply.....	29	28	10	55	-	7
Grain elevators....	8	-	-	75	12	13
Stores and markets.	11	55	9	27	9	-
Miscellaneous.....	9	22	-	45	11	22
Total and average	206	45	5	39	5	6

## ABOUT HALF AFFILIATED WITH OTHER CO-OPS

Prior to 1941, from 50 to 90 percent of all locker plants were affiliated with other cooperatives, mostly dairy and milk plants (table 4). Since 1941, however, nearly two-thirds of the plants opened were not a part of any other cooperative business. Of the 341 plants reporting in July 1947, approximately 48 percent were not affiliated; 30 percent were affiliated with milk plants; 13 percent with farm supply organizations; 4 percent with stores and markets; 2 percent with grain elevators; and 3 percent with other types of cooperatives. (See fig. 3.)

The trend in recent years toward nonaffiliated plants, (table 5) would appear to indicate an increased confidence in the stability of this form of organization as well as more specialized skills and knowledge of operations.

## SIZE OF PLANTS

The average capacity of the 338 cooperative plants reporting was 464 lockers. (Table 5.) This shows an increase of 42 lockers per plant compared with the average for cooperative plants in a national survey, January 1946, but is less than the 500-locker average for all plants reported on that date.<sup>1</sup> The plants located in the South Atlantic States were the largest averaging 628 lockers; the smallest were in the South Central States averaging 427. Number of lockers installed averaged 439 to a plant, while number of lockers rented averaged 428.

The percentage of lockers rented ranged from 95 in the South Atlantic to 99 in the South Central and averaged 97 percent for the entire group. This indicates that, in general, cooperative plants had most of their lockers rented.

For the country as a whole, two-thirds of the plants reporting fall into the 200 to 600 locker-sized group with 41 percent reporting 300 to 500 lockers. Twenty-six percent reported 500 to 800 lockers and 11 percent had over 800. Only 9 percent of the total number of plants averaged under 200 lockers. (See table 6.)

The South Atlantic States reported the highest proportion of large plants with 67 percent having more than 500 lockers. The most typical-sized plant in this region had from 400 to 600 lockers, 58 percent being in this group.

The Western States also showed a high proportion of large plants--40 percent over 500 lockers with the largest number averaging from 200 to 500 lockers--52 percent falling in this group.

The North Central States had the largest proportion of smaller plants--66 percent with less than 500 lockers per plant. The most typical-sized plant in this region averaged from 200 to 500 lockers.

<sup>1</sup>Mann, L. B. and Wilkins, Paul C. Frozen Food Locker Plants; Location, Capacity, Rates, and Use, January 1, 1946. Farm Credit Administration Misc. Rpt. 105. February 1947.



Table 4. - Cooperative frozen food locker plants reporting affiliated with other types of cooperative organizations by year of opening

YEAR OF OPENING	PLANTS REPORTING	NOT AFFILIATED		AFFILIATED WITH									
				MILK PLANTS		FARM SUPPLY		GRAIN ELEVATORS		STORES AND MARKETS.		MISCELLANEOUS	
		NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
1935 and prior...	10	-	-	7	70	1	10	-	-	1	10	1	10
1936.....	10	1	10	8	80	-	-	-	-	-	-	1	10
1937.....	28	8	29	19	68	-	-	-	-	-	-	1	3
1938.....	30	9	30	15	50	6	20	-	-	-	-	-	-
1939.....	28	13	46	14	50	1	4	-	-	-	-	-	-
1940.....	26	9	35	10	38	1	4	2	8	1	4	3	11
1941.....	23	15	66	3	13	3	13	1	4	1	4	-	-
1942.....	15	8	53	3	20	1	7	1	7	1	7	1	7
1943.....	19	8	42	5	26	1	5	2	11	3	16	-	-
1944.....	47	27	57	5	11	7	15	1	2	3	6	4	9
1945.....	50	30	60	6	12	13	26	1	2	-	-	-	-
1946.....	36	23	64	4	11	9	25	-	-	-	-	-	-
1947.....	19	12	63	3	15	2	11	-	-	2	11	-	-
Total.....	341	163	48	102	30	45	13	8	2	12	4	11	3

Table 5.- Cooperative frozen food locker plants reporting, average locker capacity, lockers installed, lockers rented, and percentage of lockers rented, by regions, July 1, 1947

REGION	PLANTS REPORTING	AVERAGE CAPACITY PER PLANT IN NUMBER OF LOCKERS	AVERAGE NUMBER OF LOCKERS INSTALLED	AVERAGE NUMBER OF LOCKERS RENTED	PERCENTAGE OF LOCKERS RENTED <sup>a</sup>
North Central.....	238	445	421	411	98
Western.....	25	537	504	496	98
South Central.....	35	427	414	408	99
North Atlantic.....	16	462	410	393	96
South Atlantic.....	24	628	600	570	95
UNITED STATES.....	338	464	439	428	97

<sup>a</sup>Percentages based on number of lockers installed.

In the South Central States two-thirds of all plants averaged from 300 to 500 lockers and 22 percent from 500 to 800 per plant. The North Atlantic region reported 56 percent of plants in the 200 to 500 group with 32 percent averaging 500 to 800 lockers per plant.

The miscellaneous group averaged the largest number of lockers. (See table 7.) These plants were usually affiliated with cold storage warehouses, canneries, and poultry-processing cooperatives. The second

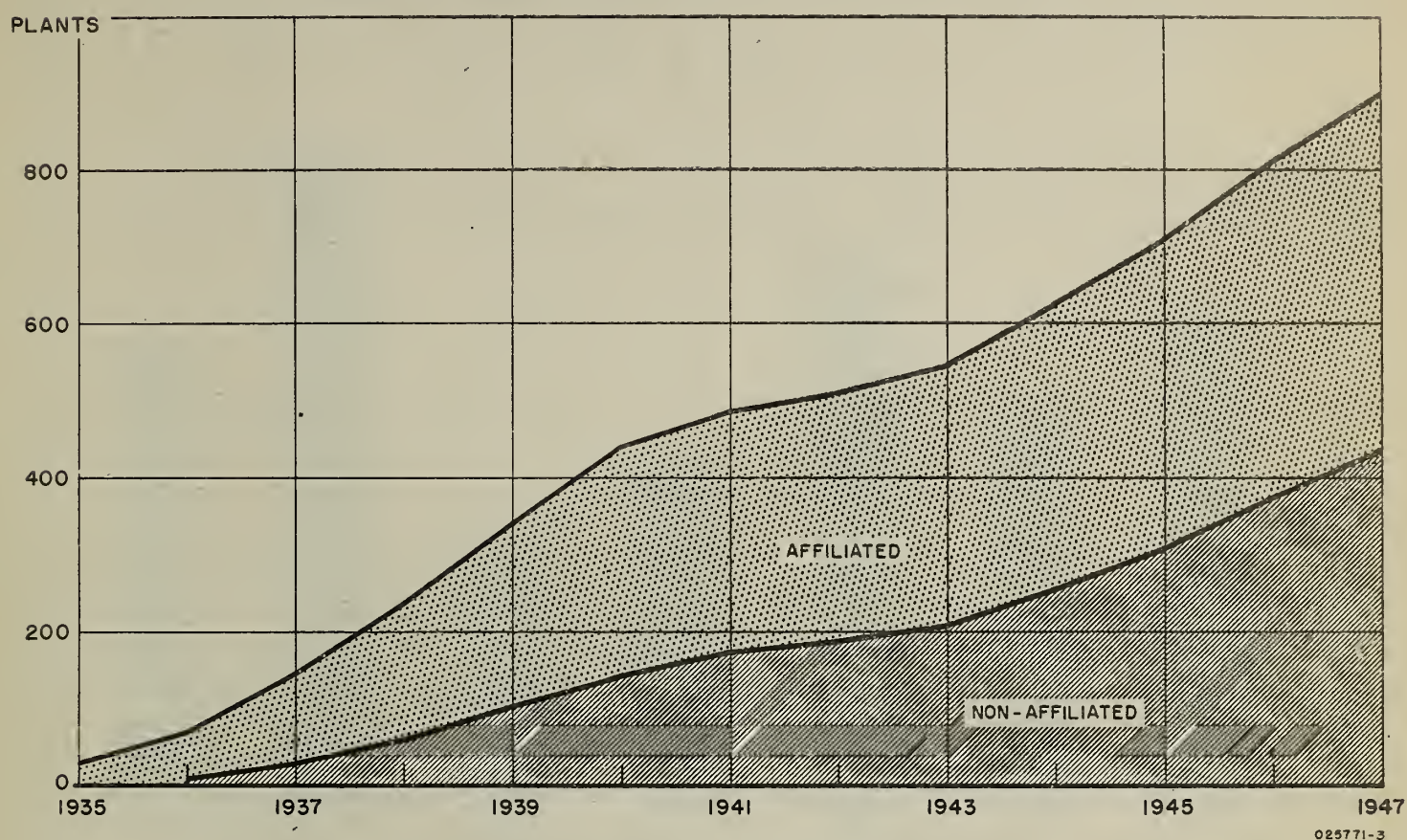
Table 6.- Percentage of frozen food locker plants of various sizes, by regions, July 1, 1947<sup>a</sup>

NUMBER OF LOCKERS	NORTH CENTRAL	WESTERN	SOUTH CENTRAL	NORTH ATLANTIC	SOUTH ATLANTIC	UNITED STATES
Under 100.....	1	-	-	-	-	1
100 - 199.....	10	8	3	6	-	8
200 - 299.....	15	16	5	18	-	13
300 - 399.....	24	24	43	25	4	24
400 - 499.....	16	12	23	13	29	17
500 - 599.....	13	8	8	6	29	13
600 - 699.....	7	-	8	13	12	7
700 - 799.....	5	8	6	13	4	6
800 - 899.....	3	12	3	-	4	4
900 - 999.....	3	-	-	-	9	3
1,000 and over....	3	12	-	6	9	4
Total.....	100	100	100	100	100	100

Based on reports from 338 plants.



FIGURE 3  
GROWTH OF AFFILIATED AND NON-AFFILIATED COOPERATIVE  
FROZEN FOOD LOCKER PLANTS, 1935-47



largest plants were those affiliated with farm supply cooperatives. This group averaged 548 lockers with 495 installed and 94 percent rented. The smallest plants were those affiliated with cooperative stores and markets. These plants averaged 277 lockers with 273 installed and 98 percent rented.

The percentage of lockers rented was 97 percent and ranged from 94 percent in the farm supply group to 100 percent in grain elevator and miscellaneous groups.

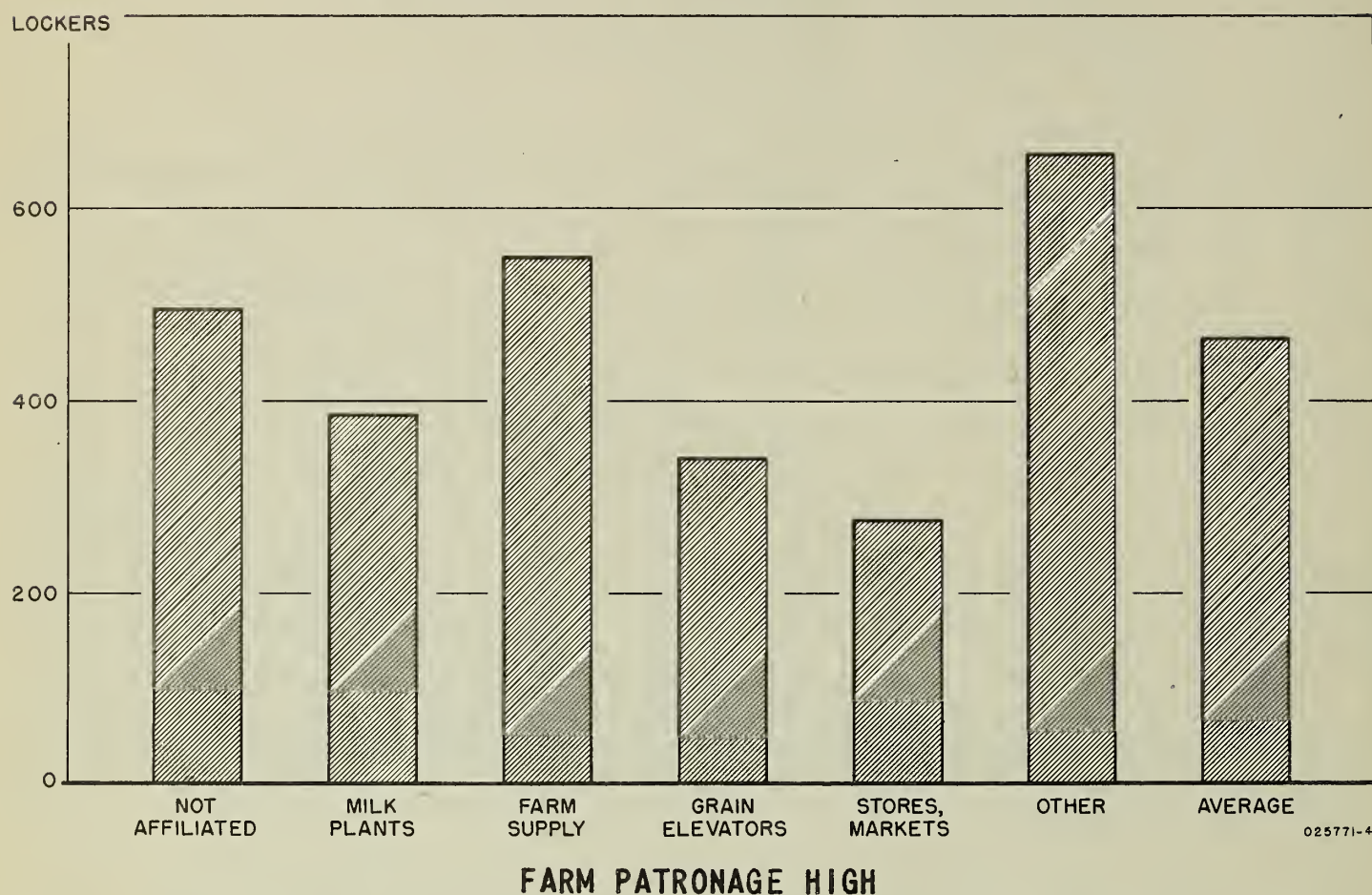
Table 7. - Cooperative frozen food locker plants reporting, average capacity in number of lockers, lockers installed, lockers rented, and percentage of lockers rented, July 1, 1947

AFFILIATION	PLANTS REPORTING.	AVERAGE LOCKER CAPACITY	AVERAGE LOCKERS INSTALLED	AVERAGE LOCKERS RENTED	PERCENTAGE OF LOCKERS RENTED <sup>a</sup>
Not affiliated....	162	496	480	472	98
Milk plants.....	101	385	358	348	97
Farm supply.....	45	548	495	466	94
Grain elevators...	8	341	310	309	100
Stores and markets	11	277	273	268	98
Miscellaneous.....	11	655	595	595	100
Total or average	338	464	439	428	97

<sup>a</sup>Percentages based on number of lockers installed.



FIGURE 4  
AVERAGE CAPACITY OF COOPERATIVE FROZEN FOOD LOCKER  
PLANTS, BY AFFILIATION, JULY 1, 1947



Eighty-two percent of all locker patrons of 335 cooperative plants reporting were farmers. The percentage of farmer patronage in cooperative plants, as might be expected, is considerably higher than the 73 percent shown by the survey of all locker plants in 1946. The average number of patrons per plant was 364, ranging from 303 in the North Atlantic to 575 in the South Atlantic States (table 8).

Farm patronage was highest, 85 percent, in locker plants affiliated with milk cooperatives and lowest in plants affiliated with stores and miscellaneous types of associations - from 76 to 78 percent. Farm patronage was highest, 83 percent, in the North Central States and lowest, 74 percent, in the Western region.

#### PLANTS OPERATED BY AN ASSOCIATION

Nearly 90 percent of the associations operated only one plant; 5 percent operated two plants; 1 percent, three plants; 3 percent, four plants; and less than 2 percent, five plants or more. (See table 9.) A very low percentage of associations operated more than one plant for the country as a whole. An exception is in Illinois where a majority of county locker associations operate several plants. Another trend in Illinois is centralizing slaughtering and major processing operations at one point in a county to serve a number of branch locker plants.

Table 8. - Average number of patrons per plant and percentage of patrons living on farms, by affiliation and region, July 1, 1947

AFFILIATION	NORTH CENTRAL		WESTERN		SOUTH CENTRAL		NORTH ATLANTIC		SOUTH ATLANTIC		UNITED STATES	
	NUMBER OF PATRONS	PER-CENTAGE LIVING ON FARMS	NUMBER OF PATRONS	PER-CENTAGE LIVING ON FARMS	NUMBER OF PATRONS	PER-CENTAGE LIVING ON FARMS	NUMBER OF PATRONS	PER-CENTAGE LIVING ON FARMS	NUMBER OF PATRONS	PER-CENTAGE LIVING ON FARMS	NUMBER OF PATRONS	PER-CENTAGE LIVING ON FARMS
Not affiliated.....	392	82	715	63	446	84	224	83	685	68	405	81
Milk plants.....	241	88	318	73	-	-	236	90	-	-	251	85
Farm supply.....	458	84	-	-	-	-	534	70	535	80	501	81
Grain elevators.....	246	81	-	-	-	-	-	-	-	-	246	81
Stores and markets.....	170	89	328	69	-	-	-	-	-	-	230	78
Other.....	498	75	600	100	620	52	-	-	-	-	554	76
Average.....	335	83	377	74	459	81	303	78	575	77	364	82



Table 9.- Number of associations reporting and percentage operating one or more plants, July 1, 1947

PLANTS OPERATED PER ASSOCIATION	NUMBER OF ASSOCIATIONS REPORTING	PERCENTAGE OF TOTAL
1.....	253	89.7
2.....	13	4.6
3.....	4	1.4
4.....	8	2.8
5.....	1	.4
6.....	3	1.1
Total.....	282	100.0

### POPULATION OF TOWNS

Seventy percent of all plants were operating in towns of less than 2,000 population and 49 percent in towns of less than 1,000. (See table 10.) Seventeen percent were operating in towns over 5,000 and only 8 percent in towns of 10,000 and over. This indicates that a higher proportion of cooperative plants are located in small farming communities than other types of plants as shown by the 1946 survey. This earlier survey reported 56 percent of all plants in towns of less than 2,000, and 26 percent in towns of 5,000 and over.

The North Central region reported the highest proportion, 77 percent, of plants operating in towns of less than 2,000 with the South Atlantic showing the smallest proportion, 29 percent. The Western States reported the highest proportion of plants in towns of 5,000 or over, while the South Central States had the smallest.

Table 10.- Percentage of cooperative frozen food locker plants operating in towns of specified population, by regions, July 1, 1947<sup>a</sup>

POPULATION	NORTH CENTRAL	WESTERN	SOUTH CENTRAL	NORTH ATLANTIC	SOUTH ATLANTIC	UNITED STATES
Under 500.....	32	20	6	25	9	26
500 - 999.....	25	16	17	32	4	23
1,000 - 1,999.....	20	24	40	-	16	21
2,000 - 2,999.....	5	-	11	6	25	7
3,000 - 3,999.....	2	4	11	6	4	3
4,000 - 4,999.....	2	-	9	6	9	3
5,000 - 9,999.....	7	20	3	19	20	9
10,000 - 14,999....	2	-	3	6	4	3
15,000 and over....	5	16	-	-	9	5
	100	100	100	100	100	100

<sup>a</sup>Based on reports from 341 plants.



## TRADING AREA IMPORTANT

Two important factors to consider in planning new locker plants are the population of the town and the number of farm people that use the community as a trading center (table 11). While it was not possible to measure the influence of the trading area on plant size, this is of even more importance than size of town as farmers are the principal users of locker plants.

The information obtained indicates a general relationship between population of town and size of plant. Eighty-one percent of plants under 200 lockers were in towns of less than 1,000 population. Sixty-seven percent of the plants between 200 and 399 lockers were also in these smaller towns, but they had no plants of over 800 lockers. The larger towns, of 10,000 or more, with only 3 percent of the plants of less than 200 lockers, accounted for 50 percent of the 1,000 and over plants. Medium-sized plants, from 400 to 800 lockers, appeared to be most generally adapted to all-sized towns.

## LOCKER PLANTS INCREASE SERVICES

In the early years of locker-plant development, services were limited largely to renting storage lockers. However, it has become not only advisable but essential for locker operators to provide additional services. Most plants offer chilling, aging, cutting, grinding, wrapping, and sharp freezing services. The more modern plants provide slaughtering; pork curing; smoking; lard rendering; poultry killing and processing, and preparation, packaging, and freezing of fruits and vegetables. In addition, an increasing number of plants store and sell commercial frozen foods.

Table 11. - Percentage of frozen food locker plants of specified locker capacity, operating, by population of town, July 1, 1947

POPULATION OF TOWN	SPECIFIED LOCKER CAPACITY						ALL PLANTS
	UNDER 200	200-399	400-599	600-799	800-999	1,000 AND OVER	
Under 500.....	58	38	18	7	-	-	26
500 - 999.....	23	29	21	22	-	-	23
1,000 - 1,499.....	-	16	13	14	10	14	13
1,500 - 1,999.....	7	5	11	14	14	-	9
2,000 - 2,999.....	-	4	11	14	10	-	7
3,000 - 3,999.....	-	4	4	2	10	-	4
4,000 - 4,999.....	-	-	5	9	-	7	3
5,000 - 9,999.....	9	3	10	11	24	29	7
10,000 - 14,999.....	-	-	3	5	4	21	3
15,000 and over.....	3	1	4	2	28	29	5
Total.....	100	100	100	100	100	100	100

Thirty separate services were reported by the cooperative plants studied. The principal ones are listed in table 12.

#### CHILL, CUT, WRAP, AND FREEZE MEAT

Eighty-six percent of the associations provided chilling, cutting, grinding, wrapping, and freezing services. (See table 13.) Only 64 percent provided these services in the Western States compared with 100 percent in South Central and South Atlantic regions.

#### CURE AND SMOKE PORK

Fifty percent of the associations did pork curing. Those in the South Central and South Atlantic States were highest--from 62 to 93 percent; while the Western States, with fewer hogs, were lowest with 16 percent.

Forty-eight percent of the associations provided smoking service. The South Central and South Atlantic States had the highest percentage--from 60 to 90 percent, with associations in the Western States the lowest--16 percent.

#### MAKE SAUSAGE

Forty-six percent of all associations manufacture sausage, the South Atlantic and South Central States leading with 90 and 95 percent. The

Table 12. - Types of services rendered by frozen food locker associations, July 1, 1947

SERVICES	ASSOCIATIONS REPORTING	
	NUMBER	PERCENT
Rent lockers.....	282	100
Slaughter for patrons.....	122	43
Do considerable slaughtering for non-locker patrons.....	41	15
Cut, wrap, freeze, and grind.....	242	86
Cure meat.....	141	50
Smoke meat.....	135	48
Render lard.....	115	41
Make sausage.....	129	46
Kill poultry.....	78	28
Wrap and freeze poultry.....	167	59
Freeze (only) fruits and vegetables.....	220	78
Process, package, and freeze fruits.....	64	23
Process, package, and freeze vegetables.....	59	21
Process and freeze poultry for sale.....	37	13
Process and freeze meats for sale.....	43	15
Sell commercial frozen fruits and vegetables (retail).....	102	36
Sell commercial frozen sea foods (retail).....	99	35
Buy meat for patrons.....	119	42
Sell home frozen food units.....	43	15
Process for home frozen food units.....	127	45



Table 13. - Cooperative frozen food locker associations reporting major processing services, by regions, July 1, 1947

REGION	ASSOCIATIONS REPORTING	MAJOR PROCESSING SERVICES							
		CHILL, CUT, WRAP, FREEZE AND GRIND		CURE		SMOKE		RENDER LARD	
		NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
North Central.....	192	163	85	85	44	85	44	72	38
Western.....	25	16	64	4	16	4	16	3	12
South Central.....	29	29	100	27	93	26	90	23	79
North Atlantic.....	16	14	88	10	62	8	50	3	19
South Atlantic.....	20	20	100	15	75	12	60	14	70
UNITED STATES.....	<sup>a</sup> 282	242	86	141	50	135	48	115	41

<sup>a</sup>The 282 associations operate a total of 341 plants.

Western and North Central States were lowest with 28 and 34 percent. While most locker cooperatives limit their operations to making country-style sausage, a few of them manufacture smoked sausage.

#### RENDER LARD

The proportion of all associations which render lard was 41 percent. The South Central and South Atlantic States led with 70 to 79 percent, with the Western and North Atlantic States showing the lowest proportion--from 12 to 19 percent. Here again the limited hog production in these regions was no doubt largely responsible for this low percentage.

#### SLAUGHTER

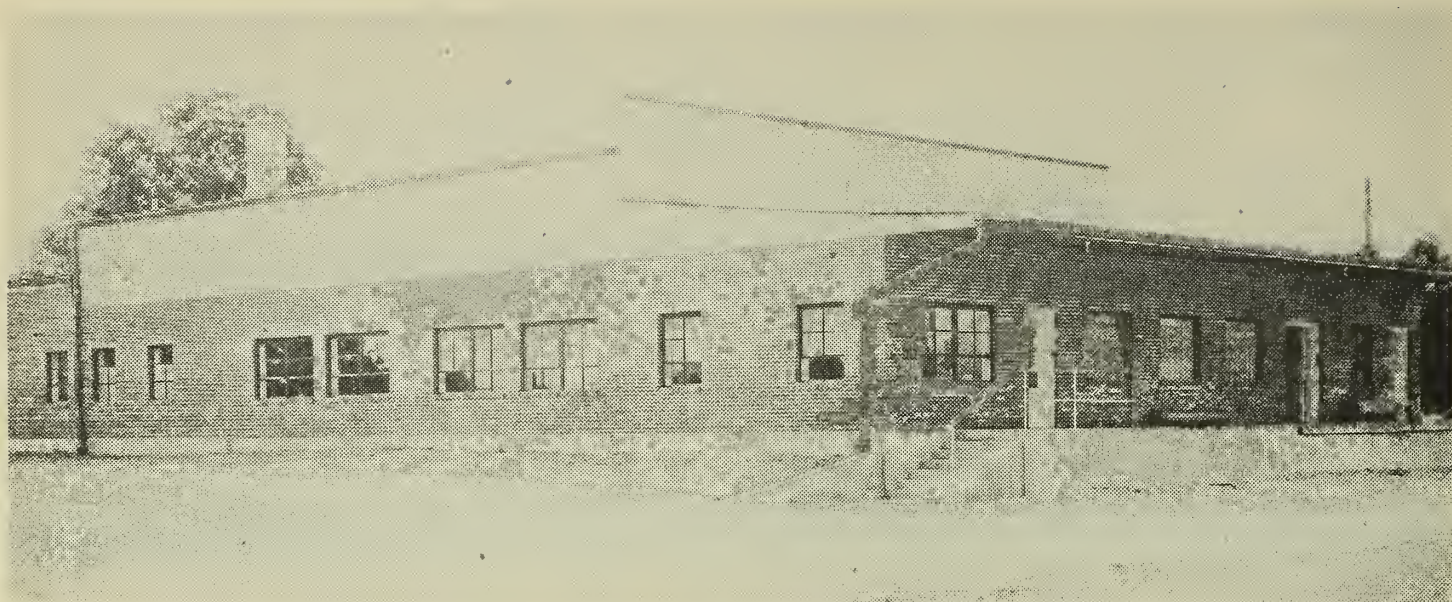
Forty-three percent of the associations provided slaughtering either at the plant, on the farm, or elsewhere, and 15 percent offered this service on a custom basis for nonlocker patrons. The leading regions reporting slaughtering were the South Central, 79 percent; North Central, 55 percent; and South Atlantic, 50 percent. The lowest was the Western States with only 8 percent. (See table 14.)

Thirty-four percent of the associations had their own slaughtering facilities; 5 percent slaughtered on farms; and 4 percent elsewhere. The regions leading in plant slaughtering were the South Central with 76 percent and the South Atlantic with 45 percent. None of the western associations slaughtered at plants, and only 6 percent of the North Atlantic plants performed this service.

Table 14. - Cooperative frozen food locker associations that provide slaughtering service, by regions, July 1, 1947

REGION	NUMBER REPORTING	SLAUGHTER					
		AT PLANT		ON FARM		ELSEWHERE	
		NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
North Central.....	192	64	33	12	6	10	5
Western.....	25	-	-	2	8	-	-
South Central.....	29	22	76	-	-	1	3
North Atlantic.....	16	1	6	-	-	-	-
South Atlantic.....	20	9	45	-	-	1	5
UNITED STATES.....	282	96	34	14	5	12	4





*Central slaughtering and processing plant operated by Macoupin County Locker Service, Carlinville, Ill. This plant services 5 branches in the county.*

In several States--particularly Illinois, Texas, and Minnesota--cooperatives operate centralized slaughtering facilities serving one or more branch locker plants. This trend appears to be increasing and seems to offer possibilities in more efficient use of facilities and labor..

#### PROCESS AND DRESS POULTRY

Fifty-nine percent of all associations did poultry wrapping and freezing, while 28 percent kill poultry. Poultry wrapping and freezing was most important in those plants located in the South Atlantic, North Atlantic, and South Central States--75 to 95 percent; and least important in Western States with only 20 percent.

The service of poultry killing is gaining in popularity and provides additional revenue during summer and fall months when meat volume is generally low. Locker associations in the South Atlantic and South Central States led in percentage offering a poultry killing service--from 66 to 70 percent; with the Western and North Central the lowest at 12 to 20 percent.

#### PROCESS AND FREEZE FRUITS AND VEGETABLES

Seventy-eight percent of all associations freeze fruits and vegetables (table 12). The North and South Atlantic and South Central States were the highest--from 90 to 100 percent; while the Western States were lowest with 28 percent. Only 23 percent performed a complete job of processing, wrapping, and freezing. The South Central and South Atlantic States were the most important, while the Western and North Central States were lowest. In some of the older plants in the Pacific Coast region fruits and vegetables are placed directly in lockers for freezing and are not processed or sharp frozen by the locker plant.

#### PROCESS FOR HOME UNITS

Forty-five percent of all associations processed for home frozen food units. The highest proportion of associations reporting this service



were located in the South Atlantic, South Central, and North Atlantic States--from 62 to 90 percent; and lowest in Western and North Central States--24 to 39 percent.

#### SELL COMMERCIAL FROZEN FOODS

Thirty-six percent of all associations sold commercial frozen fruits and vegetables. Cooperatives located in South Central, South Atlantic, and North Atlantic States were highest--from 50 to 80 percent; with those in Western and North Central States lowest--from 20 to 30 percent.

#### SELL HOME FROZEN FOOD UNITS

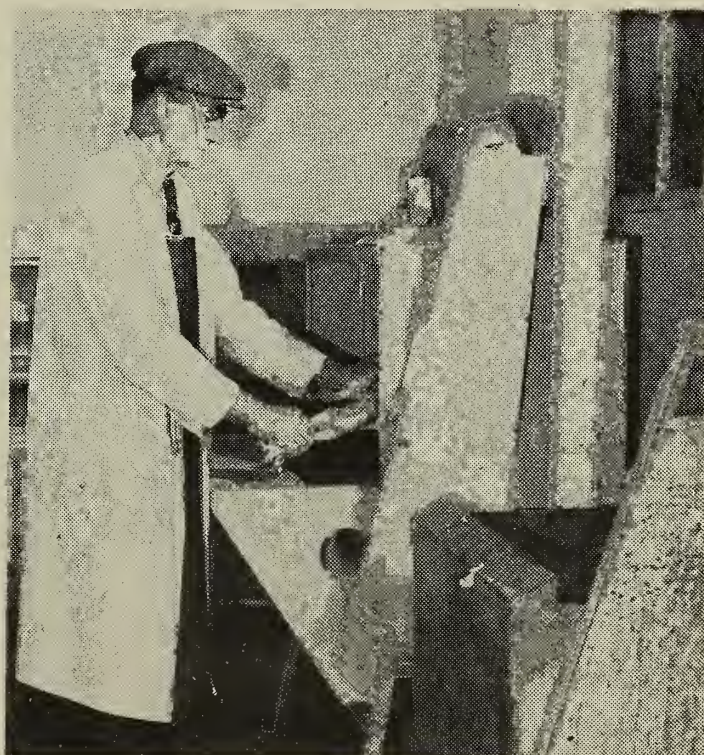
Fifteen percent of the associations reporting sold home units. This is considerably lower than the 29 percent shown by all types of locker plants in the United States in the 1946 general survey and would seem to indicate that cooperatives have been slower to enter this field than have private operators. Plants located in the South Atlantic and North Atlantic States were of most importance--from 37 to 45 percent selling home units; while those in the North Central and Western States were of minor importance--from 8 to 20 percent.

No doubt, one reason for low sales of home units by cooperatives is due to the high proportion of farmer patrons coupled with the fact that a large percentage of these plants are located in small towns and villages. In addition to the services discussed, some locker cooperatives reported freezing for sale locally produced fruits, vegetables, meats, and poultry; the wholesale storage and distribution of commercial frozen foods; the purchase of meats for patrons; custom curing and smoking; marketing of patrons' fresh meats, poultry, fruits and vegetables; chilling and cutting meat for local restaurants, hotels, and retailers; renting of bulk-zero storage space; manufacture and sale of dog food; manufacture and sale of ice cream; and storing, grading, and selling eggs, fruits, and other products.

It would appear from these various services that locker plants are becoming increasingly important not only as processing and refrigerated storage centers but also as marketing agencies for farm products.

#### COST OF SERVICE

Locker rental and processing rates show increases since the lifting of wartime OPA ceilings. Higher costs of construction, equipment, and labor have made it difficult, if not impossible to operate at prewar



*The dressing and processing of poultry is a service which fits into an efficient operation particularly in summer and early fall months when meat volume is low.*



rates. The average annual locker-rental rate and processing charge for chilling, cutting, wrapping, freezing, and grinding are shown by regions in table 15. Processing rates for curing, smoking, lard rendering, poultry dressing, and slaughtering are not shown owing to lack of space on schedules used in obtaining these data. However, it was felt that a comparison of these two most important rates and charges is sufficient to indicate differences between regions as well as a comparison with other rates of all types of locker plants.

Average rental rate of all cooperative plants operating on July 1, 1947, was \$11.79 per locker. Plants located in the South Atlantic States were highest at \$14.49, while those in the Western region were lowest at \$8.85 per locker. Compared with the national survey of several thousand plants in 1946, average rates for cooperative locker plants were only 41 cents higher per locker; and in two regions--Western and North Atlantic--they were lower.

Processing rates averaged \$2.54 per hundred pounds and ranged from a low of \$2.23 in the North Central to \$3.64 in the South Central States. The average for the whole group was not more than a third of a cent per pound above the rates reported on January 1, 1946, by all types of plants.

It is apparent that cooperative plants as a whole have not raised rates to any appreciable extent, and that their rates are lower than those charged by many other plants.

Table 15. - Average locker rental rate and rate charged to cut, wrap, freeze, and grind by cooperative frozen food locker plants, by regions, July 1, 1947

REGION	AVERAGE LOCKER RENTAL RATES	AVERAGE RATE TO CUT, WRAP, FREEZE, AND GRIND <sup>a</sup>
North Central.....	\$11.47	\$2.23
Western.....	8.85	2.65
South Central.....	13.91	3.64
North Atlantic.....	12.40	3.06
South Atlantic.....	14.49	3.40
UNITED STATES.....	11.79	2.54

<sup>a</sup>A few plants make a separate charge for grinding. Some plants have different rates for processing beef and pork; in such instances the rate for beef processing is used.



In general, highest locker and processing rates were found in the regions of new locker-plant development. In these areas higher rates no doubt are necessary to take care of increased costs of construction, equipment, and labor. It would appear advisable, however, for locker-plant managers to use every effort to improve receipts through increased processing volume, additional services, and efficient operations before unduly boosting rates and charges.

### FOOD PROCESSED

The study showed that an average of 418 pounds of food was processed for each locker rented for the year 1946-47 compared with an average of 353 pounds shown by a national survey of several thousand plants made in 1946. (See table 16.)

While only those plants furnishing reasonably complete information on poundage handled were included in this analysis, it should be kept in mind that the breakdown between commodities frequently depends upon managers' estimates. Also, these averages were based on the number of lockers rented on July 1, 1947, rather than upon the average rented throughout the year. However, the demand for lockers during the period covered by this survey was so active that there was little difference between average yearly occupancy and that reported at the time of the survey.

Other factors are: (1) In some areas, particularly older plants on the Pacific Coast, no record is made of the fruits and vegetables put in lockers without going through the sharp freezer so the actual poundage is probably higher than indicated in table 16. (2) Pork chilled and cut

Table 16. - Average pounds of meat, poultry, and fruits and vegetables processed per locker rented, by regions, 1946-47<sup>a</sup>

REGION	BEEF	PORK	POULTRY	FRUITS AND VEGETABLES	TOTAL
North Central.....	213	188	15	25	441
Western.....	136	88	21	<sup>b</sup> 47	292
South Central.....	287	168	25	17	497
North Atlantic.....	125	82	21	30	258
South Atlantic.....	173	91	13	20	295
UNITED STATES.....	212	164	17	25	418

<sup>a</sup>Based on 168 plants.

<sup>b</sup>Primarily Washington and Oregon plants. A survey made in 1946 of several thousand plants indicated that these two States averaged approximately 42 pounds per locker while the average for all States in the Western region was 22 pounds.

includes pork that went through the curing department as well as that stored in fresh-frozen form; hence, the pounds of pork curing is not in addition to the pounds chilled and cut. In some plants, however, the amount of pork cured may also include some hams, shoulders, and bacon sides from hogs slaughtered on the farm and brought to the plant for curing only. This volume does not appear in the poundage figures shown on table 16.

Some significant facts revealed in table 16 are: (1) Beef volume exceeds that of pork even though the national per capita consumption of pork usually is higher than that of beef. This greater consumption of beef by locker patrons points to the possible trend toward increased beef consumption compared with that of pork. (2) There are wide variations between regions in pounds and types of meat processed per locker.

The largest per locker volume of all food processed was in the South Central and North Central States, while the smallest was in the North Atlantic States.

The South Central and North Central States were highest in beef and pork, while the North Atlantic and Western were lowest. The South Atlantic was much lower in pork poundage than the average of 181 pounds per locker reported by several thousand plants in the national survey of January 1946. This lower volume of the cooperative plants may be due to the fact that most of them were not located in hog-producing areas and that pork production throughout the South has been drastically reduced because of high feed costs since 1945. It is believed, however, that this low pork poundage in the cooperative plants is not typical of many privately operated locker plants in the Southeast and points to the need for increased pork processing by some of these associations.

Poultry processed averaged 17 pounds per locker compared with 15 pounds shown in the national survey of January 1946. Plants located in the South Central States led with an average of 25 pounds, while those in the North Atlantic and North Central States were lowest with 13 and 15 pounds.

Fruits and vegetables frozen for patrons averaged 25 pounds compared with 24 pounds in the 1946 national survey. The Western States led with 47 pounds, with the South Central the lowest with 17 pounds per locker. One reason for this high poundage in the Western States was that a large proportion of the cooperative plants reporting were located in Washington and Oregon, where a large volume of fruits and vegetables is stored.

Pork cured per locker averaged 72 pounds compared with 65 pounds shown in 1946. As would be expected the Southern States led in pork curing--South Central 169 pounds and South Atlantic 89 pounds per locker.

The North Central States averaged 59 pounds and North Atlantic 45 pounds, while the few plants reporting from the Western States had no pork cured.



## EMPLOYEES NEEDED

The number of full-time employees needed to operate a locker plant depends upon the size of plant, volume processed, kind and variety of services rendered, seasonal character of raw product to be processed, and upon efficiency of labor and management.

An analysis made of replies received from 174 plants shows a relationship between size of plant and number of employees. Slightly more than one full-time employee was needed in plants under 200 lockers to over four in plants of 900 or more lockers (table 17). It should be recognized, however, that these figures refer only to full-time help and do not include the amount of part-time labor used. Also, the information presented is on an average or most common number-of-employee basis.

Table 17 shows the difference in the amount of labor employed by plant size as well as types of major services rendered. It is interesting to note that on the average most of the type A plants reported one full-time employee up to 300 lockers, while types B and C reported one full-time man for plants up to 200 lockers.

An average of two full-time employees was reported in type A plants, ranging from 300 to 799 lockers; while type B plants used two full-time employees for plants ranging from 200 to 499 lockers; and type C plants reported two employees for plants of 200 to 399 lockers. On the average, it required three full-time employees to operate type A plants of 800 lockers and over, while type B plants used three full-time employees for 500 to 699 lockers, and type C for plants of 400 to 599 lockers. The use of four full-time employees was reported by type B plants of 700 to 899 lockers, and by type C plants of 600 to 799 lockers. From four to five employees were used in type B plants with more than 900 lockers and by type C plants of 800 or more lockers.

Table 17. - Size of plants usually operated by indicated number of full-time employees, July 1, 1947<sup>a</sup>

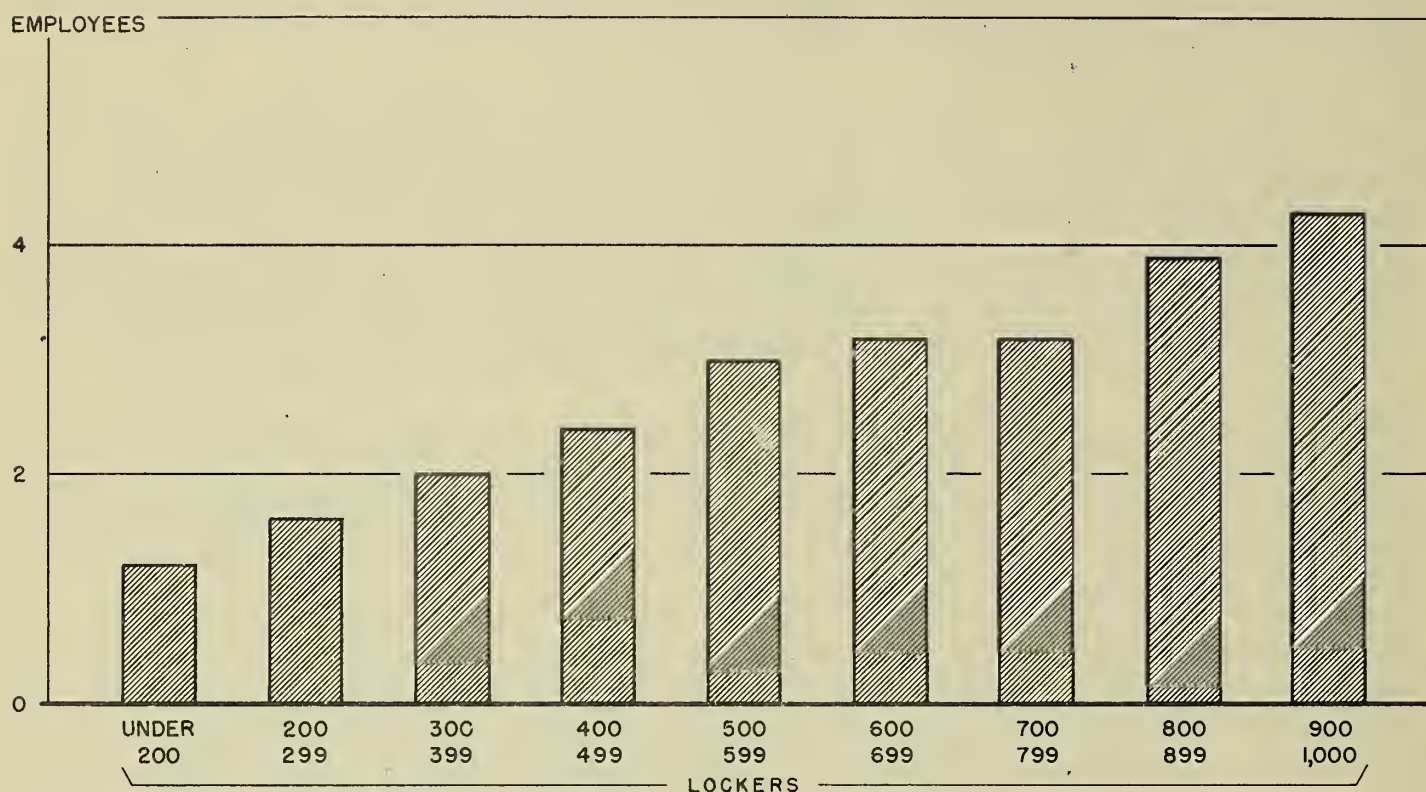
NUMBER OF EMPLOYEES <sup>b</sup>	MAJOR SERVICES OFFERED			AVERAGE
	A	B	C	
	CUT, WRAP, FREEZE AND GRIND	CUT, WRAP, FREEZE, GRIND, CURE, AND SMOKE	CUT, WRAP, FREEZE, GRIND, CURE, SMOKE, AND SLAUGHTER	
	Lockers			
1.....	Under 300	Under 200	Under 200	Under 200
2.....	300 - 799	200 - 499	200 - 399	200 - 499
3.....	800 & over <sup>c</sup>	500 - 699	400 - 599	500 - 799
4.....	-	700 - 899	600 - 799	800 - 999
5.....	-	900 & over <sup>c</sup>	800 - 999	1,000 & over <sup>c</sup>

<sup>a</sup>Based on reports received from 174 plants.

<sup>b</sup>Does not include part-time help.

<sup>c</sup>Upper limit not determined.

FIGURE 5  
AVERAGE NUMBER OF FULL-TIME EMPLOYEES  
BY SIZE OF LOCKER PLANT



NOTE: DATA BASED ON REPORTS RECEIVED FROM 174 PLANTS.

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It should be pointed out, however, that there were numerous variations both above and below these averages or most commonly reported figures. As explained, these variations may be influenced by such factors as volume, type of help obtainable, uneven seasonal flow of product, number and variety of services rendered, and management. However, it is felt that the information presented may be of value in providing a rough guide for determining the amount of labor generally used by plants of different size and type of operation.

### COST OF PLANT FACILITIES

In comparing costs of facilities it should be recognized that plants vary in the number and type of services rendered and that additional services call for more elaborate facilities and equipment, and also that some associations were able to buy used buildings which tend to reduce costs. While some of the additional cost is due to the construction of more complete plants, much of it is due to sharply increased costs of construction over the past 10 to 12 years. Table 18 is based on 181 plants with 88,295 lockers representing an investment of over \$5 million.

In arriving at plant costs on a per locker basis, the total number of lockers that can be installed in the existing low temperature rooms was used to show "locker capacity." Table 18 shows that for the prewar period 1935 to 1940 the average cost on a per locker basis ranged from \$34 to \$45 per locker. During the war years costs advanced to \$52 to \$56



Table 18. - Cooperative frozen food locker plants reporting and average investment per locker capacity,<sup>a</sup> by regions and year of opening

YEAR	NORTH CENTRAL		WESTERN		SOUTH CENTRAL		NORTH ATLANTIC		SOUTH ATLANTIC		UNITED STATES	
	PLANTS REPORT- ING	AVERAGE PER LOCKER	PLANTS REPORT- ING	AVERAGE PER LOCKER	PLANTS REPORT- ING	AVERAGE PER LOCKER	PLANTS REPORT- ING	AVERAGE PER LOCKER	PLANTS REPORT- ING	AVERAGE PER LOCKER	PLANTS REPORT- ING	AVERAGE PER LOCKER
1935 and prior.....	2	\$41.79	1	\$42.76	-	-	-	-	-	-	3	\$42.63
1936.....	4	33.75	-	-	-	-	-	-	-	-	4	33.75
1937.....	12	35.41	2	37.16	-	-	-	-	-	-	14	35.68
1938.....	10	44.37	-	-	-	-	-	-	-	-	10	44.37
1939.....	14	42.36	-	-	1	\$91.50	-	-	-	-	15	43.96
1940.....	9	41.02	-	-	1	21.51	1	\$48.09	1	\$89.56	12	45.47
1941.....	5	42.08	1	54.35	2	63.37	-	-	1	33.40	9	45.22
1942.....	4	43.90	1	33.57	-	-	1	46.19	-	-	6	39.73
1943.....	6	63.16	-	-	1	35.00	1	34.99	-	-	8	52.41
1944.....	20	48.30	2	36.46	6	67.57	3	52.48	4	73.87	35	56.29
1945.....	13	50.39	1	119.97	7	80.32	1	54.03	10	83.07	32	70.02
1946.....	19	63.94	-	-	2	117.32	-	-	3	111.76	24	76.35
1947.....	5	60.89	-	-	1	122.50	1	75.29	2	80.18	9	73.63
Total and average	123	48.10	8	57.78	21	74.56	8	52.02	21	81.55	181	56.72

<sup>a</sup>The term "locker capacity" means the total number of lockers which can be installed in existing low temperature rooms.

per locker, and with the end of the war and the lifting of controls they increased sharply to \$70 to \$76 per locker.

The plants built at lowest cost were in the North Central States with a per locker cost of about \$34 to \$44 before World War II to \$50 to \$64 from 1945 to 1947, and an average cost for the 13-year period of \$48. Western plants also reported low construction costs, averaging from \$34 to \$54 per locker, with the exception of one large plant built in 1945 at \$120 per locker. Average cost for the 11-year period was about \$58 per locker. One reason for lower cost in this region was due to older plants of more limited service type.

The plants reporting highest costs were those built in the South Atlantic States. Plants in this region, most of which were constructed from 1944 to 1946, averaged from \$74 to \$112 per locker with individual plants costing as much as \$158 per locker. The average cost for the 8-year period was \$81 per locker.

South Central plants were next to the South Atlantic in high cost per locker. Most of these plants were constructed during and after the war, and costs ranged from \$68 to \$122 per locker and for the 9-year period averaged nearly \$75 per locker.

To offset higher plant costs rates must be raised, and additional receipts obtained from increased processing volume and added services or labor must be used more effectively. Large volume alone, without efficient use of labor, does not, as a rule, result in satisfactory savings; and high rates alone may result in reduced patronage and unsatisfactory income.

#### MAJOR ITEMS OF FIXED ASSETS

Because of lack of sufficient information a breakdown of major items of investment by regions and by years was possible for only two regions, the north Central and the South Atlantic States.

Sixteen plants from the North Central States, which opened between 1944 and 1947, had an average investment in fixed assets of \$60.20 per locker. The investment by major items is as follows: Land, 4 percent; building, 40 percent; insulation, 19 percent; refrigeration equipment, 17 percent; lockers, 12 percent; processing equipment, 7 percent; and other, 1 percent.

In the South Atlantic States, 12 plants opened during the same period reported an average investment of \$78.37 per locker and a breakdown of major investment items as follows: Land, 4 percent; building and insulation, 63 percent; refrigeration, 16 percent; lockers, 9 percent; processing equipment, 6 percent; and other, 2 percent. The chief reason for greater investment in the South Atlantic plants is the high cost of building construction.



## RECEIPTS, EXPENSE, AND SAVINGS

Information on receipts, expense, and net savings was secured from 223 cooperative frozen food locker plants for the period 1946-47. The 223 plants had a total of 94,838 lockers rented with receipts amounting to \$2.5 million; expenses, \$2.2 million; and net savings, \$298,000 (table 19). Receipts averaged \$26.70 per locker rented; expenses, \$23.55; and net savings, \$3.15. One hundred forty-four plants reporting detailed financial information indicated that locker rental receipts averaged \$11.45 per locker rented<sup>1</sup> or 43 percent of receipts.<sup>2</sup> Processing receipts accounted for \$12.47 or 47 percent of receipts; and other receipts \$2.78 or 10 percent. (See table 20, fig. 6)

<sup>1</sup>The \$11.45 income from locker rentals differs from the average locker rental rate of \$11.79 shown in table 15 because in general, rental rates were raised during the year. The rental income is an average for the whole year while the average rental rate is at the close of the year.

<sup>2</sup>In most instances the term receipts refers not only to cash transactions but also to accruals of receipts.

Table 19. - Plants reporting, lockers rented, receipts, expense, and net savings, by regions, 1946-47

REGION	PLANTS REPORTING	LOCKERS RENTED	TOTAL RECEIPTS	TOTAL EXPENSE	TOTAL NET SAVINGS	PER LOCKER RENTED		
						RECEIPTS <sup>a</sup>	EXPENSE	NET SAVINGS
North Central.....	153	61,413	\$1,526,739.14	\$1,325,061.59	\$201,677.55	\$24.86	\$21.58	\$3.28
Western.....	13	6,552	120,681.06	89,389.81	31,291.25	18.42	13.64	4.78
South Central.....	28	11,680	464,571.30	411,567.49	53,003.81	39.78	35.24	4.54
North Atlantic.....	9	3,809	84,866.82	81,214.10	3,652.72	22.28	21.32	.96
South Atlantic.....	20	11,384	335,426.80	326,460.81	8,965.99	29.46	28.67	.79
UNITED STATES.....	223	94,833	2,532,285.12	2,233,693.80	298,591.32	26.70	23.55	3.15

<sup>a</sup>Most associations report receipts on an accrual basis.

Table 20. - Analysis of receipts, expense, and net savings, by regions, 1946-47

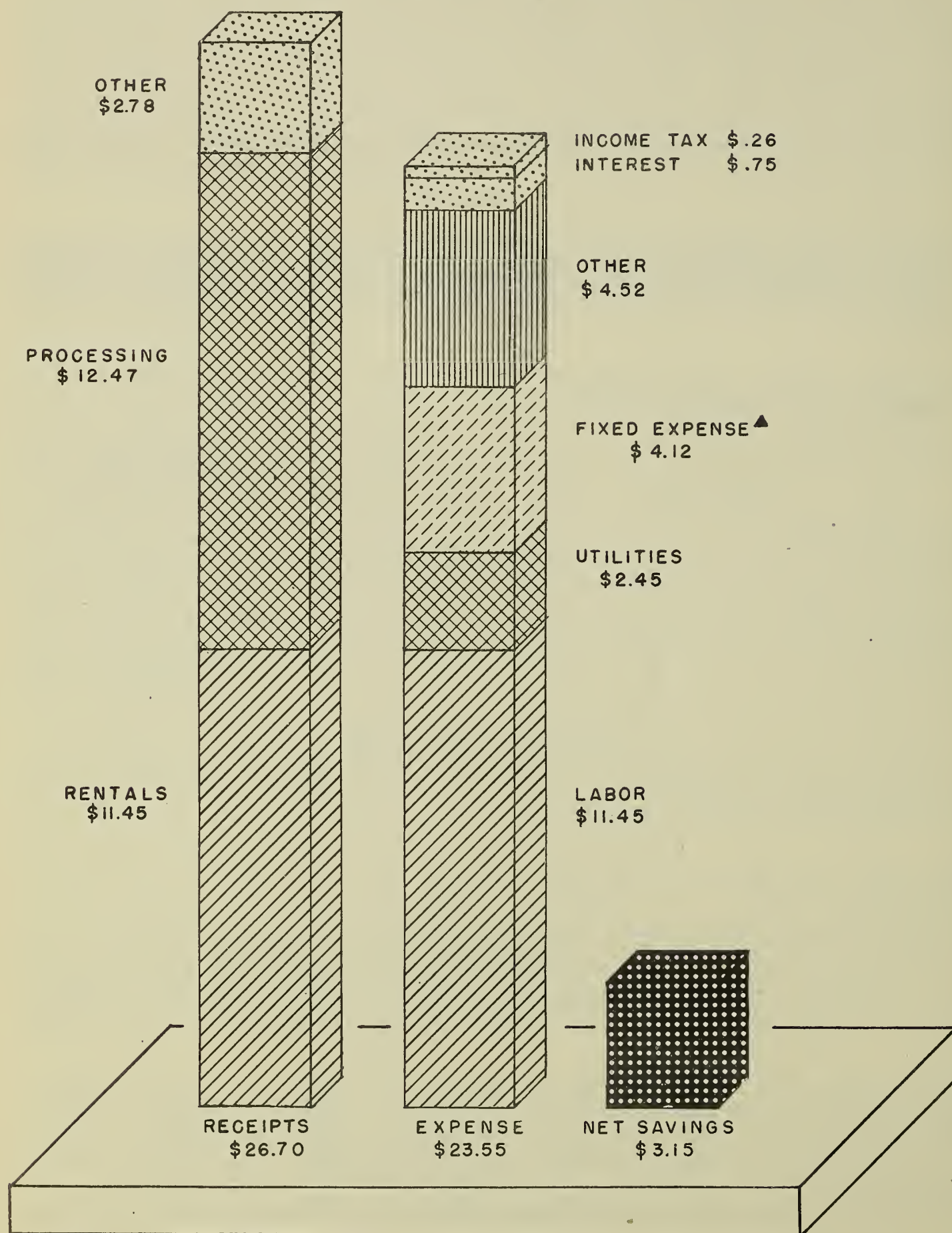
REGION	RECEIPTS <sup>a</sup>				TOTAL EXPENSE	NET SAVINGS
	LOCKER RENTALS <sup>b</sup>	PROCESSING	OTHER	TOTAL INCOME		
	Percent					
North Central.....	43.5	45.5	11.0	100.0	86.8	13.2
Western.....	59.7	31.5	8.8	100.0	74.0	26.0
South Central.....	31.6	58.4	10.0	100.0	86.6	11.4
North Atlantic.....	49.3	45.4	5.6	100.0	95.7	4.3
South Atlantic.....	43.9	45.6	10.5	100.0	97.3	2.7
UNITED STATES.....	42.9	46.7	10.4	100.0	88.2	11.8

<sup>a</sup>Most associations report receipts on an accrual basis.

<sup>b</sup>Includes income from zero-bulk storage.

FIGURE 6

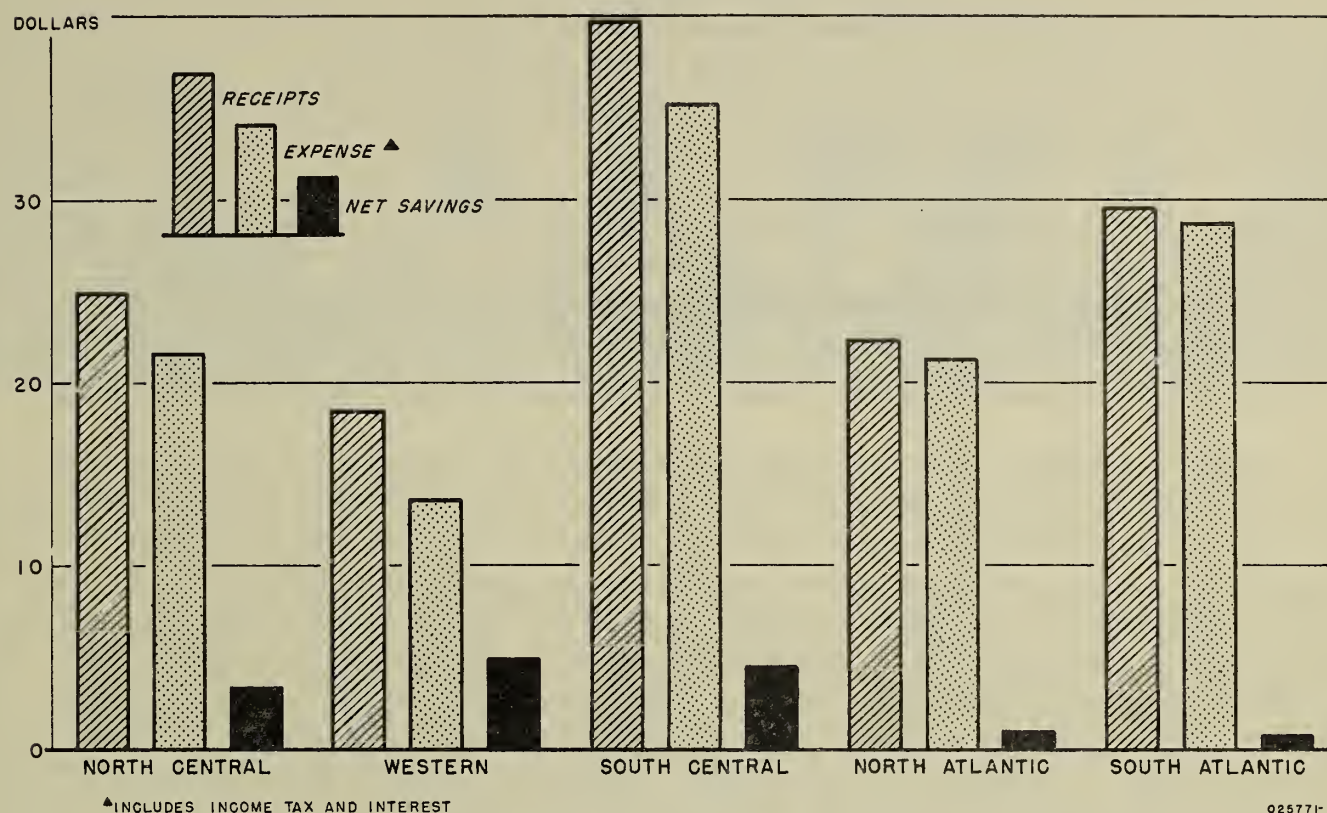
# AVERAGE RECEIPTS, EXPENSE, AND NET SAVINGS PER LOCKER RENTED, 1946-47



▲ DEPRECIATION, LICENSES, TAXES AND REPAIRS



FIGURE 7  
RECEIPTS, EXPENSE, AND NET SAVINGS PER LOCKER RENTED  
BY REGIONS, 1946-47



Expenses averaged 88 percent of receipts or \$23.55 per locker rented. Labor costs amounted to \$11.45 per locker rented or 49 percent of all expenses. Utilities accounted for 10 percent; fixed charged (licenses, taxes, depreciation, and repairs), 18 percent; other expenses (supplies, office expense, etc), 19 percent; and interest and income tax, 4 percent.

Net savings averaged \$3.15 per locker rented or 12 percent of receipts. Before payment of interest and income taxes, net savings were \$4.16 per locker rented or 16 percent of receipts. In numerous plants net savings before payment of income taxes and interest were as high as \$5 to \$8 a locker, while a few plants reported savings as high as \$12.

Inasmuch as there is considerable variation in rates and services offered in different sections of the country, the data are presented on a regional basis. Twenty-eight plants from the South Central region reported the highest average gross receipts per locker rented amounting to \$39.78. High processing charges plus a large number of services including slaughtering accounted for the exceptionally high average receipts. The lowest average receipts was reported by plants in the Western region. Low locker-rental rates along with the tendency toward limited processing services resulted in average gross receipts of only \$18.42 per locker rented.

The North Central region, where the majority of cooperative locker plants are located, reported average receipts of \$24.86 per locker rented, approximately \$2 below the national average.

Receipts from locker rentals ranged from 60 percent of all receipts in the Western region to 32 percent in the South Central. Processing receipts ranged from 58 percent of receipts in the South Central to 31 percent in the Western region.

Expenses were lowest in the Western region due to low labor costs and low investment in facilities. In the North Atlantic and South Atlantic States expenses were high compared with receipts. In these regions total expenses amounted to 96 percent and 97 percent, respectively, of receipts.

The highest average net savings were made by plants in the Western region. These plants averaged \$4.78 per locker rented or 26 percent of receipts. As indicated previously, relatively low labor costs and low investment in facilities were primarily responsible for this situation. A high proportion of these plants are affiliated with other cooperative organizations and it is possible that the operating expenses were not properly allocated between the locker plant and other departments. The South Central plants were second highest with savings of \$4.54 per locker rented. Plants in the North Atlantic and South Atlantic States reported the lowest savings. The greatest development in these regions occurred during and since the war when construction costs were at a high level. These large investments resulting in high depreciation and interest expenses, as well as relatively high labor costs, account to a great extent for the low savings in these plants.

#### NET SAVINGS BY SERVICES OFFERED

The plants analyzed in table 21 are divided into 4 groups according to services offered. In general it was found that the more services

Table 21. - Average net savings per locker rented, before income taxes and interest by major services in 159 plants, by regions, 1946-47

REGION	MAJOR SERVICES							
	RENT LOCKERS ONLY		RENT LOCKERS, CUT, WRAP, AND FREEZE		RENT LOCKERS, CUT, WRAP, FREEZE, AND CURE		RENT LOCKERS, SLAUGHTER, CUT, WRAP, FREEZE, AND CURE	
	PLANTS REPORTING	NET SAVINGS	PLANTS REPORTING	NET SAVINGS	PLANTS REPORTING	NET SAVINGS	PLANTS REPORTING	NET SAVINGS
North Central....	7	\$2.65	42	\$2.62	28	\$4.26	37	\$4.45
Western.....	1	1.00	3	4.15	3	6.54	-	-
South Central....	-	-	1	5.01	3	3.72	8	4.63
North Atlantic...	-	-	3	(44)	5	1.98	1	6.09
South Atlantic...	-	-	6	4.41	5	2.26	6	1.40
UNITED STATES....	8	2.50	55	2.93	44	3.94	52	4.18





*This successful Virginia cooperative not only performs the usual locker plant services but also dresses and processes a large volume of poultry for local stores, restaurants, hotels, and county hucksters on a custom basis.*

performed by a plant the greater the net savings. On the average, plants renting lockers only, netted \$2.50 per locker rented before payment of income taxes and interest. Plants that cut, wrapped, and froze meat, in addition to renting lockers, netted \$2.93 per locker, while those plants that added another service, curing, netted \$3.94 per locker. The greatest savings were made by plants classed as complete service plants--that is, in addition to renting lockers, they did slaughtering, cutting, wrapping, freezing, and meat curing. These plants averaged \$4.18 net savings per locker or 67 percent more than the plants offering locker-storage service only.

#### NET SAVINGS BY GROSS RECEIPTS PER LOCKER

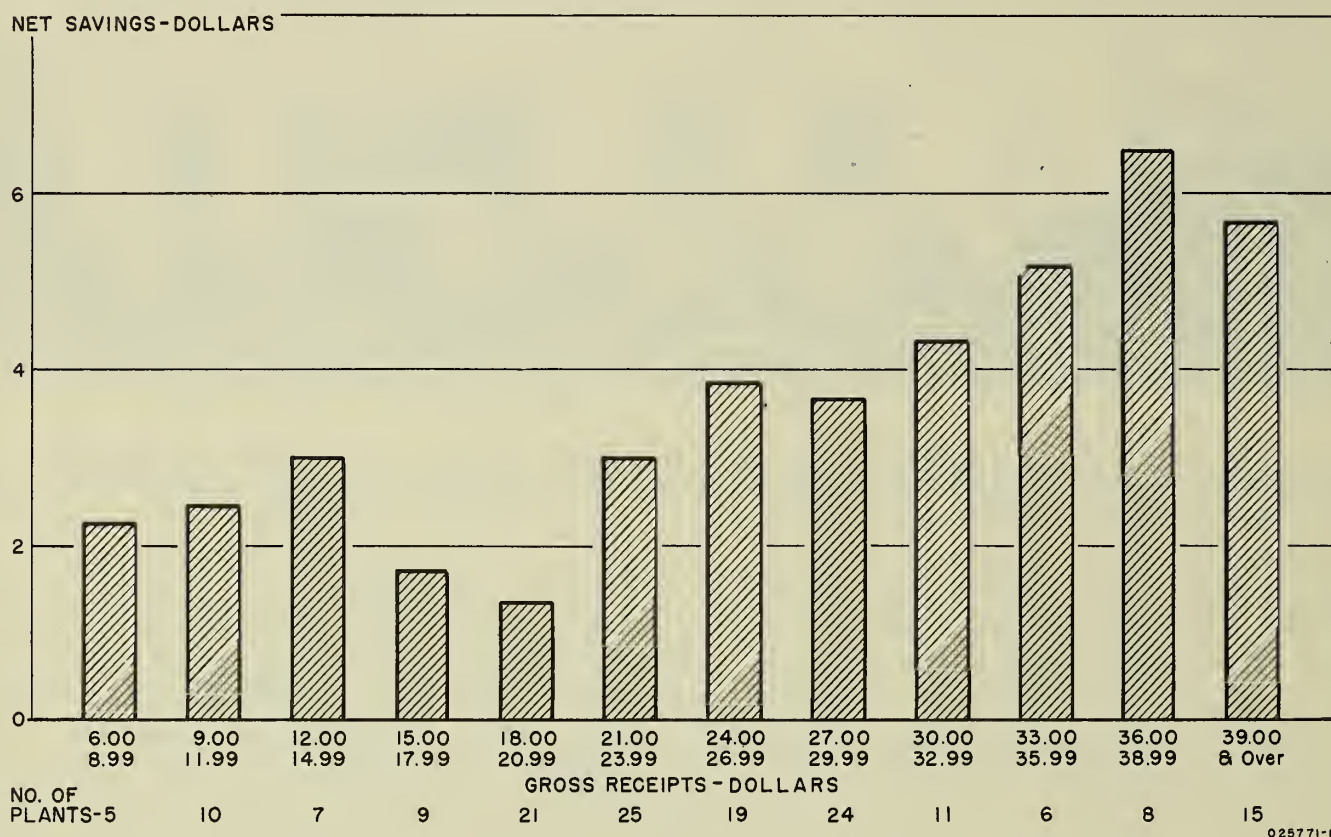
Figure 8 shows a comparison of net savings per locker rented before payment of income taxes and interest with gross receipts per locker. In general, savings are low up to \$21 of gross receipts. Plants with receipts of less than \$15 a locker are usually the branch plants of the North Central States in which no processing services are offered and the limited service plants of the Pacific Northwest. Nearly all receipts in these plants come from locker rentals. These plants have very little labor costs--utilities, depreciation, taxes, repairs, and maintenance being the major expenses.

In the \$15 to \$21 gross receipts group savings were at the lowest level. These are the plants that generally have facilities and labor for processing but volume and, in some instances, rates are so low that the cost of furnishing the processing services exceeds processing receipts. This situation results in the locker department subsidizing the processing department.

Above \$21 of gross receipts per locker, savings increase as gross receipts increase. Above \$30 savings exceed \$4 per locker and in the \$36 to \$39 group, average \$6.48 per locker. In most instances the plants with gross receipts of \$25 or more derive more than half their receipts from processing and merchandising services. These plants generally offer a variety of processing services and are able to make more efficient use of labor and processing facilities than the group with smaller receipts.



FIGURE 8  
NET SAVINGS PER LOCKER RENTED BEFORE PAYMENT OF INCOME TAXES  
AND INTEREST, BY GROSS RECEIPTS PER LOCKER, 1946-47



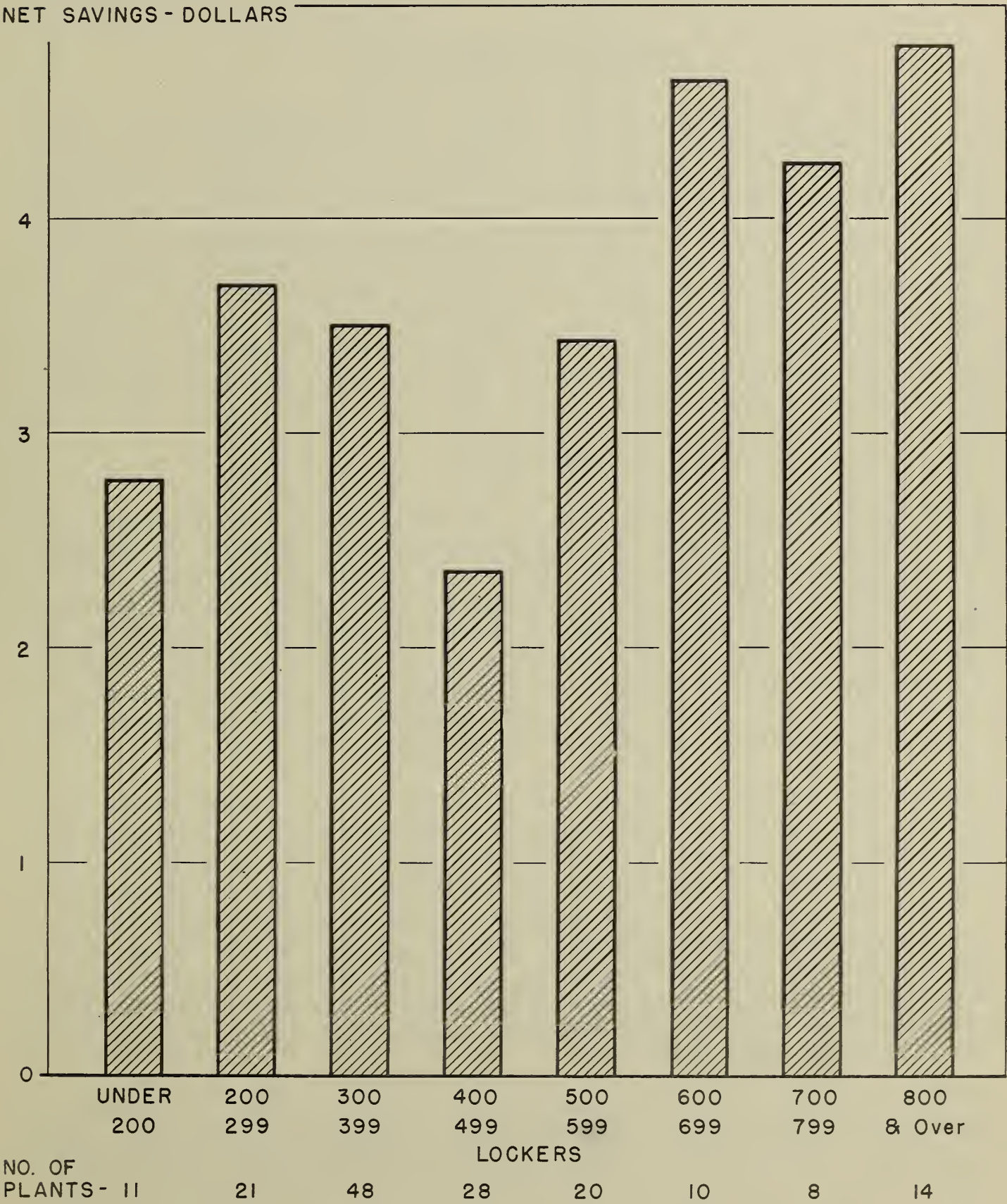
Other factors which contribute to the better savings position of these plants are: First, higher than average rental and processing rates which enable plants to secure greater receipts while performing the same amount of work as the average plant. Second, greater volume of processing thereby permitting greater efficiency in the use of labor. Third, smaller percent of receipts spent for fixed costs such as depreciation and taxes. Fourth, added services such as slaughtering or curing may contribute more savings than the basic processing service of chilling, cutting, wrapping, and freezing. Other things being equal it was found the greater the gross receipts above \$21 per locker, the better the chances are of realizing satisfactory savings.

#### NET SAVINGS BY SIZE OF PLANT

Figure 9 shows net savings per locker rented before payment of income taxes and interest, by size of plant. The information furnished by the 160 plants indicates that some relationship exists between savings and plant size. Plants under 200 lockers averaged \$2.79 net savings per locker. In the 200- to 400-locker group, savings exceeded \$3.50, declining to \$2.35 in the 400- to 500-locker group. The more favorable savings shown by the smaller plants may be explained in part by the fact that many of these plants, affiliated with other cooperative enterprises, are housed in the same buildings and make joint use of labor, power, and equipment. From 500 lockers to 700 lockers savings rose fast and averaged more than \$4.50 per locker for the larger sizes. Plants having



FIGURE 9  
NET SAVINGS PER LOCKER RENTED BEFORE PAYMENT  
OF INCOME TAXES AND INTEREST, BY SIZE  
OF PLANT, 1946-47



over 800 lockers reported savings averaging \$4.81 per locker, the highest of all groups.

Wide variation in savings among plants of all sizes was noted. Size of plant alone does not necessarily guarantee satisfactory net savings. A combination of several other factors such as depreciation, power, volume processed, services rendered, and efficiency of management and labor are all important.

#### EXPENSES BY SIZE OF PLANT

Figure 10 shows expenses per locker rented before payment of income taxes and interest by size of plant. Expense per locker rose as plants increased in size up to 600 lockers. Generally this can be attributed to the additional cost of added services and the cost of labor necessary to perform these services. Above 600 lockers the expense per locker declined so that plants with 800 lockers and over had only 80 percent as much expense per locker as the 500- to 600-locker group. The reasons for this are believed to be first, lower fixed costs per locker; second, greater efficiency in the use of labor; and third, some of the larger plants offered only limited processing services and hence had less operating expense per locker.

#### LABOR COST

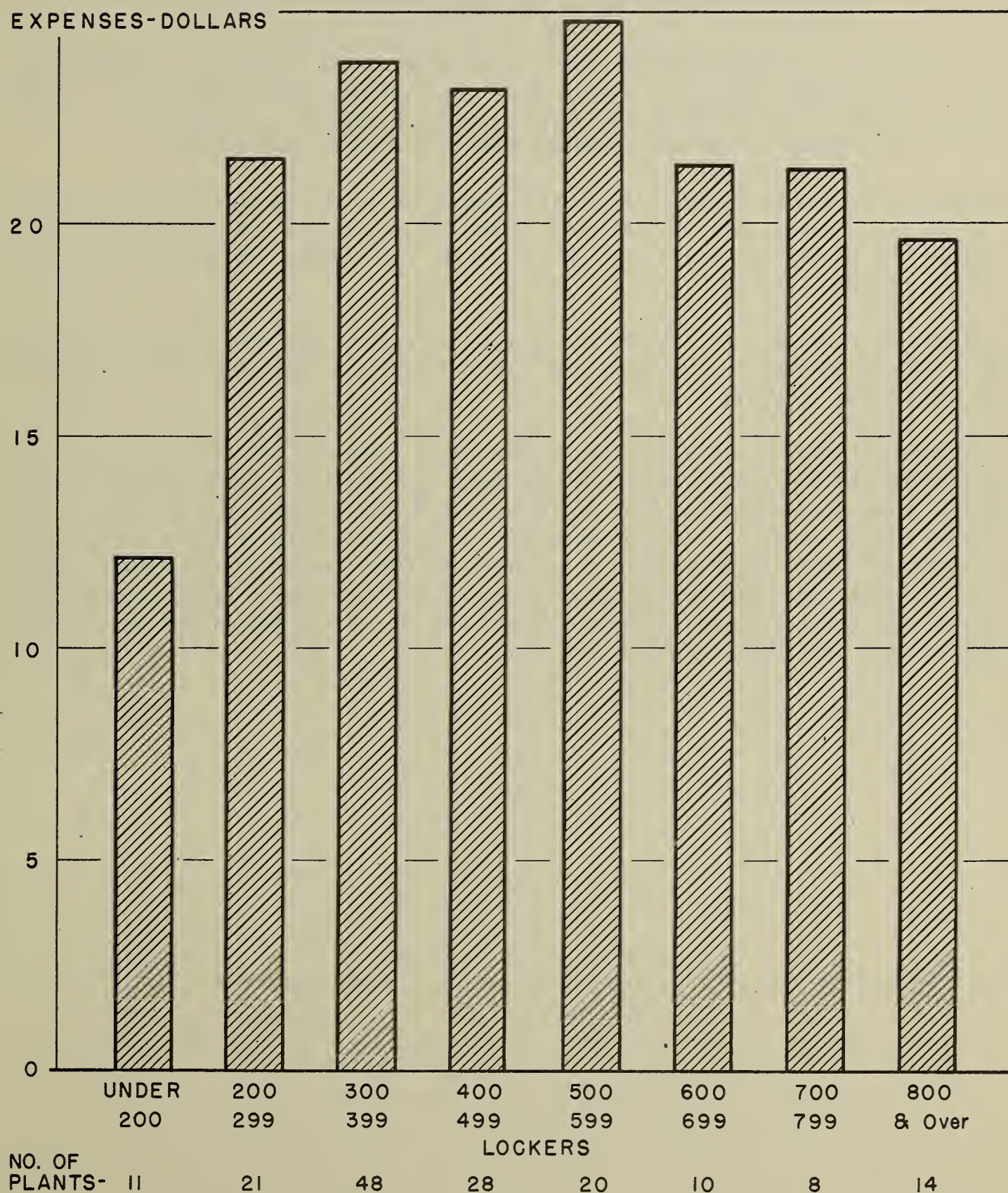
Labor and management cost is by far the largest expense item in locker-plant operation. On the average, 49 percent of all expenses, or 43 percent of receipts, is spent for this item. One method of measuring efficiency in the use of labor is to compare total labor and management cost with total processing receipts. Labor is used, of course, in all departments of a locker plant. The bulk of the labor, however, is used for processing and such a comparison is valuable in comparing one plant with another. It was found that on the average 92 cents was spent for labor and management for each dollar of processing receipts.

Wide variations were noted among the plants. It was evident that the efficient use of labor was responsible for the processing department of some plants being operated profitably. For the majority of plants, however, it is doubtful if the receipts from processing are sufficient to cover labor and other processing expenses. One of the principal difficulties experienced by many plants is that of low-processing volume during the summer and early fall months. Detailed studies of a group of Illinois cooperatives indicate that from four to six months during the summer and fall, receipts from processing services fail to cover the cost of labor and management.

Improved use of labor in locker plants will depend in large measure on developing trained personnel and labor-saving equipment, increasing processing volume, levelling out peaks in the volume processed throughout the year, adding new services, and using more part-time help. The improvement in the use of labor in the processing department is a major problem confronting the frozen food locker industry today.



FIGURE 10  
EXPENSES PER LOCKER RENTED BEFORE PAYMENT  
OF INCOME TAXES AND INTEREST, BY SIZE  
OF PLANT, 1946-47



## OTHER MAJOR EXPENSES

Depreciation is the second largest expense item in locker plant operation, averaging 12 percent of all expenses or \$2.78 per locker rented for the plants reporting. Depreciation per locker varied widely, depending on investment in facilities and depreciation rate used.

Utilities, the third largest item, amounted to 10 percent of expenses or \$2.45 per locker rented. Again wide variations were found due to difference in rates charged for power, efficiency of refrigeration equipment, and volume of products processed and frozen per locker.

Supplies averaged 7 percent of all expenses or \$1.74 per locker rented. The major causes for variations from the average, in this item, were volume of products processed per locker and number of processing services offered.

Repairs accounted for 3 percent of all expenses and amounted to 75 cents per locker rented. Licenses and taxes were 2.5 percent of expenses or 59 cents per locker.

Cooperative frozen food locker plants have been one of the fastest growing cooperative activities of the past ten years. Farm families have found them admirably suited to their needs for preserving fruits, vegetables, and meats. They also offer a satisfactory market outlet for locally produced farm products to town patrons and tend to reduce unnecessary handling and distribution costs. Through their operation another important service has been added to the many now provided by farmers themselves through cooperative action.





